GEOLOGICAL SURVEY OF ALABAMA

WALTER B. JONES, STATE GEOLOGIST

Information Series 23

INTERIM REPORT ON GROUND-WATER STUDIES IN THE ATHENS AREA, ALABAMA through January 1960

By William M. McMaster

Prepared by the
United States Geological Survey
in cooperation with
the City of Athens
and the
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University, Alabama
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LETTER OF TRANSMITTAL

University, Alabama

December 7, 1960

Honorable John M. Patterson

Governor of Alabama

Montgomery, Alabama

Sir:

I have the honor to transmit herewith the manuscript of a report entitled "Interim Report on Ground-Water Studies in the Athens Area, Alabama, through January 1960" by William M. McMaster, with the request that it be printed as Information Series 23 of the Geological Survey of Alabama.

Respectfully,

WALTER B. JONES

State Geologist

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(All plates are in pocket.)

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INTERIM REPORT ON GROUND-WATER STUDIES IN THE ATHENS AREA, ALABAMA through January 1960

By William M. McMaster

INTRODUCTION

Location and Extent of Area

For the purposes of this investigation the Athens area, in northern Limestone County, is defined as the area covered by four Tennessee Valley Authority $7\frac{1}{2}$-minute topographic quadrangles as follows: the Elkmont quadrangle (67 NW), the Athens quadrangle (67 SW), the Ripley quadrangle (60 SE), and the Salem quadrangle (60 NE). Limestone County is bounded on the north by the Alabama-Tennessee State line, on the east by Madison County, on the south by the Tennessee River, and on the west by Lauderdale County (fig. 1).

Limestone County has an area of about 540 square miles and the Athens area occupies approximately 240 square miles. Athens is located about 25 miles west of Huntsville, Ala., and 15 miles north of Decatur, two of the largest cities in the Tennessee Valley.

Well-Numbering System

The numbering of wells and springs in the Athens area is based on the Federal system of land subdivision which divided the public land into townships approximately 36 square miles in area. In the well and spring numbering system used in this report, the townships of Limestone County were designated by letters, in alphabetical order, beginning with "A" in the northeast township. This report covers all of 4 townships and parts of 8 others. The wells and springs within a township are numbered consecutively, in the same order as sections, beginning in the northeast section, and are prefixed by the letter identifying the township; for example, A-1, A-2, A-3 (fig. 2).

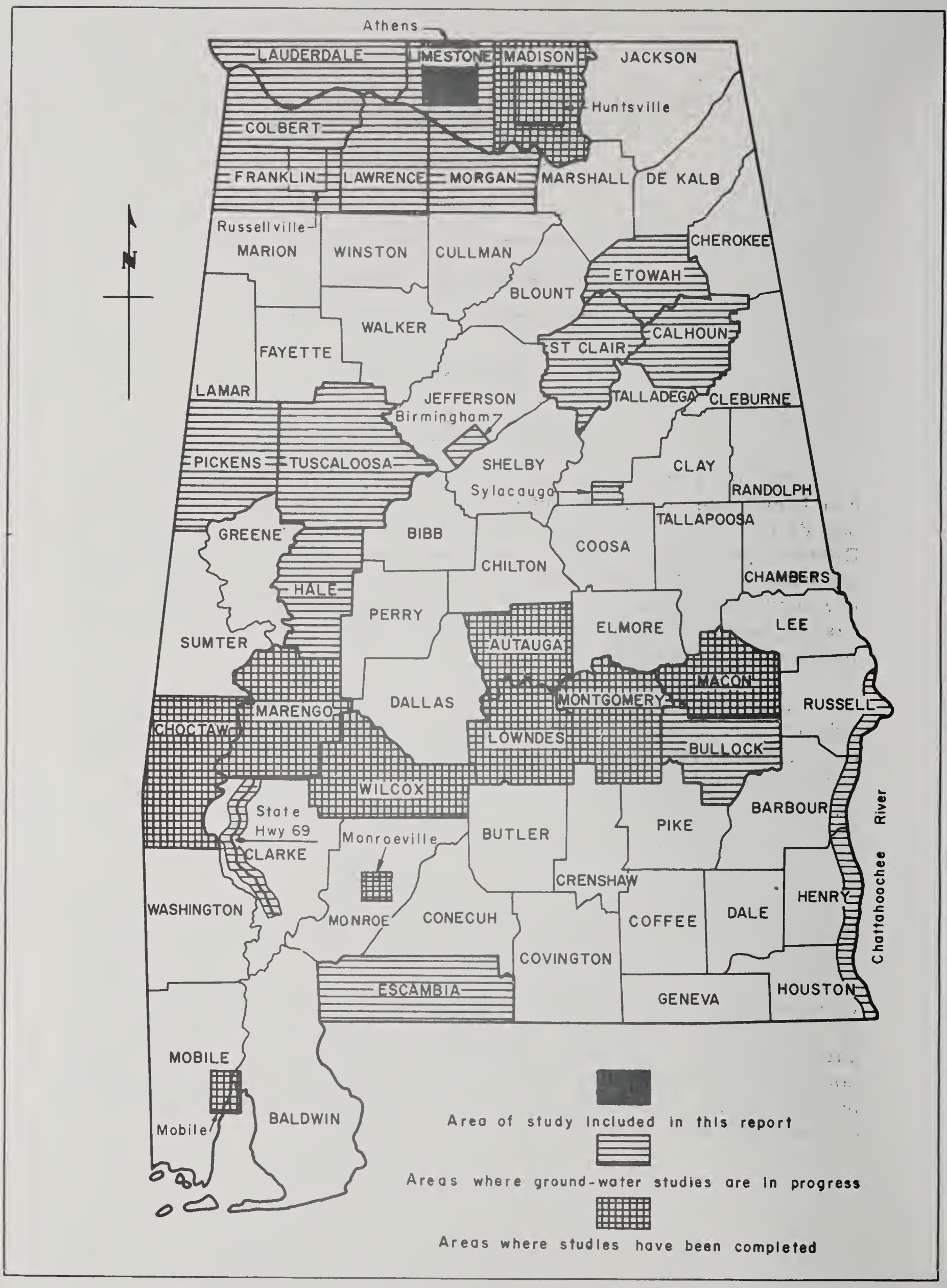
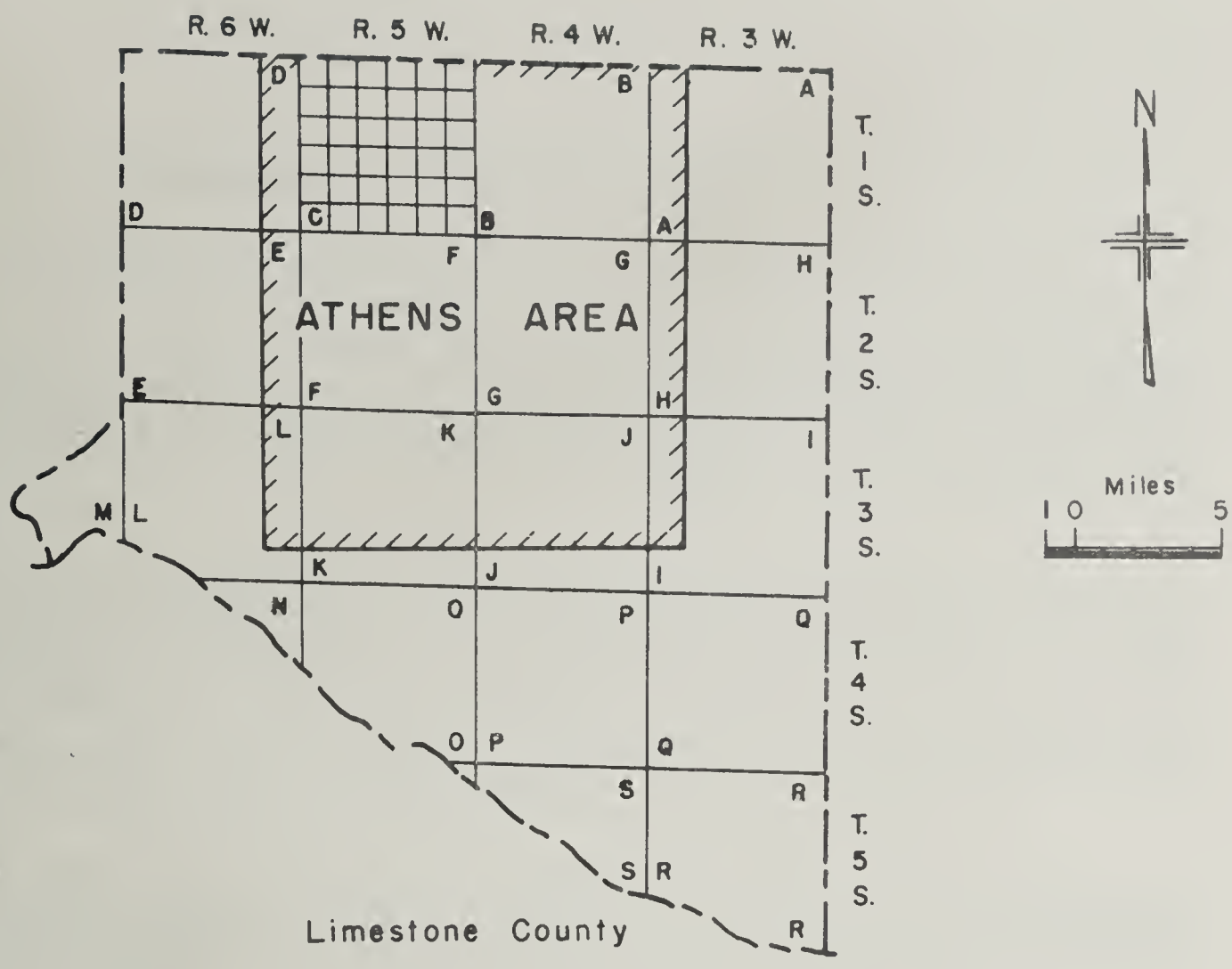


Figure 1.-Map of Alabama showing area studied and areas of other ground-water studies.



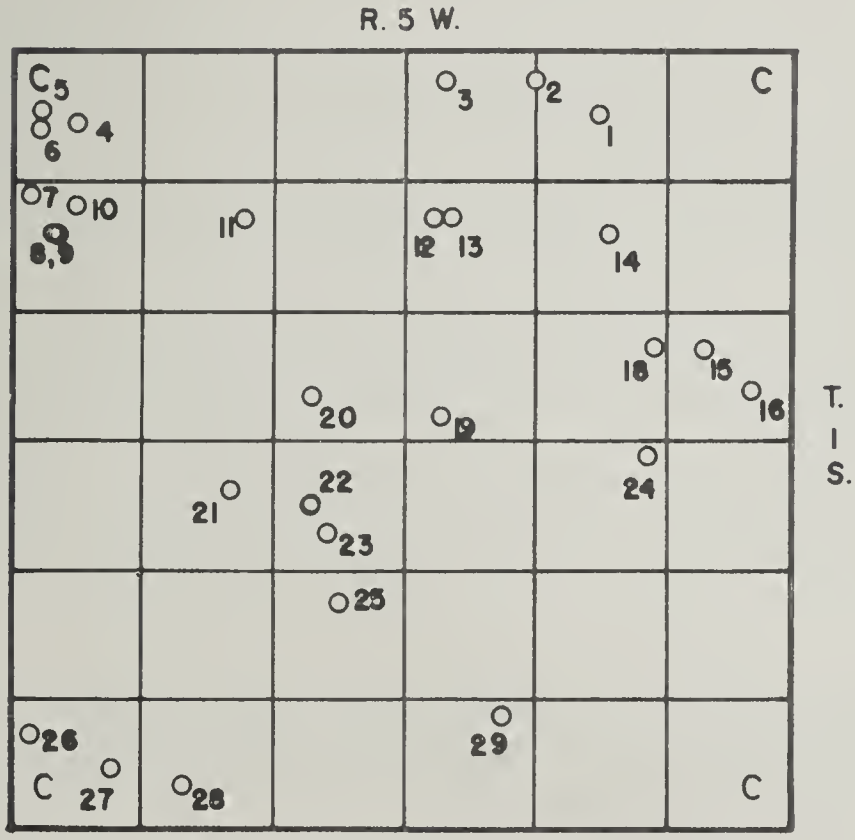


Figure 2.- Diagram showing well numbering system in the Athens area, Ala.

Purpose and Scope of Investigation

The population of Athens and vicinity has increased substantially in the past 3 years as a result of expansion and increased employment at Redstone Arsenal in Huntsville, Ala. Continued population growth and further industrial development of the area will require more water to meet these needs. The municipal water supply for Athens is obtained from two wells and a spring.

In November 1958 the United States Geological Survey in cooperation with the City of Athens and the Geological Survey of Alabama, began an investigation of the ground-water resources of the Athens area. The purpose of this report is to make available in graphic and tabular form information obtained during the course of that study, through January 1960. The investigation consisted of the following:

1. An inventory was made of all drilled wells and springs and representative dug wells in the area. Water samples were collected from most wells and springs for field analysis of hardness and chloride content. Data from the inventory and chemical analyses are given in tables 1 and 3. The locations of wells and springs are shown on plate 1.

2. A system of observation wells was established, in which water levels are measured periodically and recorded to determine seasonal variations, reaction to rainfall and vegetative requirements, and the effects of withdrawal of ground water. Fluctuations in three of these wells and daily precipitation at Athens are shown graphically in figure 3. A continuous water-level recorder is maintained on well J-21 (fig. 4).

3. Test wells were drilled to determine geologic structure and stratigraphy and their relation to the occurrence and availability of ground water. Information for 14 test wells completed through January 1960 is given in tables 1 and 2 and figures 5 through 13. Locations of the test wells are shown on plate 1. A preliminary geologic structure map showing the configuration of the top of the Chattanooga shale is shown on plate 2.

4. Pumping tests of suitable wells were made to determine their yields and aquifer properties. Results of four pumping tests are shown graphically in figures 14 through 17.

5. Water from 13 selected wells was analyzed to determine the general chemical character of the ground water. The results of these analyses are given in table 3.

6. The thickness of residual material above bedrock was determined to delineate possible areas of contamination and recharge of ground water. This information is shown in plate 3, which indicates the general range in thickness of residual material.

7. A geologic map of the area was compiled showing the character, distribution, and thickness of the water-bearing formations. A generalized geologic map of the Athens area is shown in figure 18. The detailed geologic map is planned for completion by July 1, 1960.

8. A map showing the configuration of the ground-water surface in the Athens area was drawn (pl. 4). Thirty-seven wells were measured during December 7-8, 1959 for this purpose.

9. Data was collected on the current use of ground water in the area and the effects of withdrawal on water levels in the area.

This report was prepared as a means of expediting the release of the basic data that are currently needed for the proper planning and development of ground-water supplies for industrial and municipal use in the Athens area. When the investigation is completed a more comprehensive and interpretive report will be released as a Bulletin of the Geological Survey of Alabama.

Acknowledgments

The author expresses appreciation to the Athens City Council and the Athens Water and Electric Department, Mr. John Marlin, manager, for their cooperation and assistance during the project. Acknowledgment is made also to residents of the Athens area who furnished information on wells and springs, use of water, and other data pertinent to the investigation.

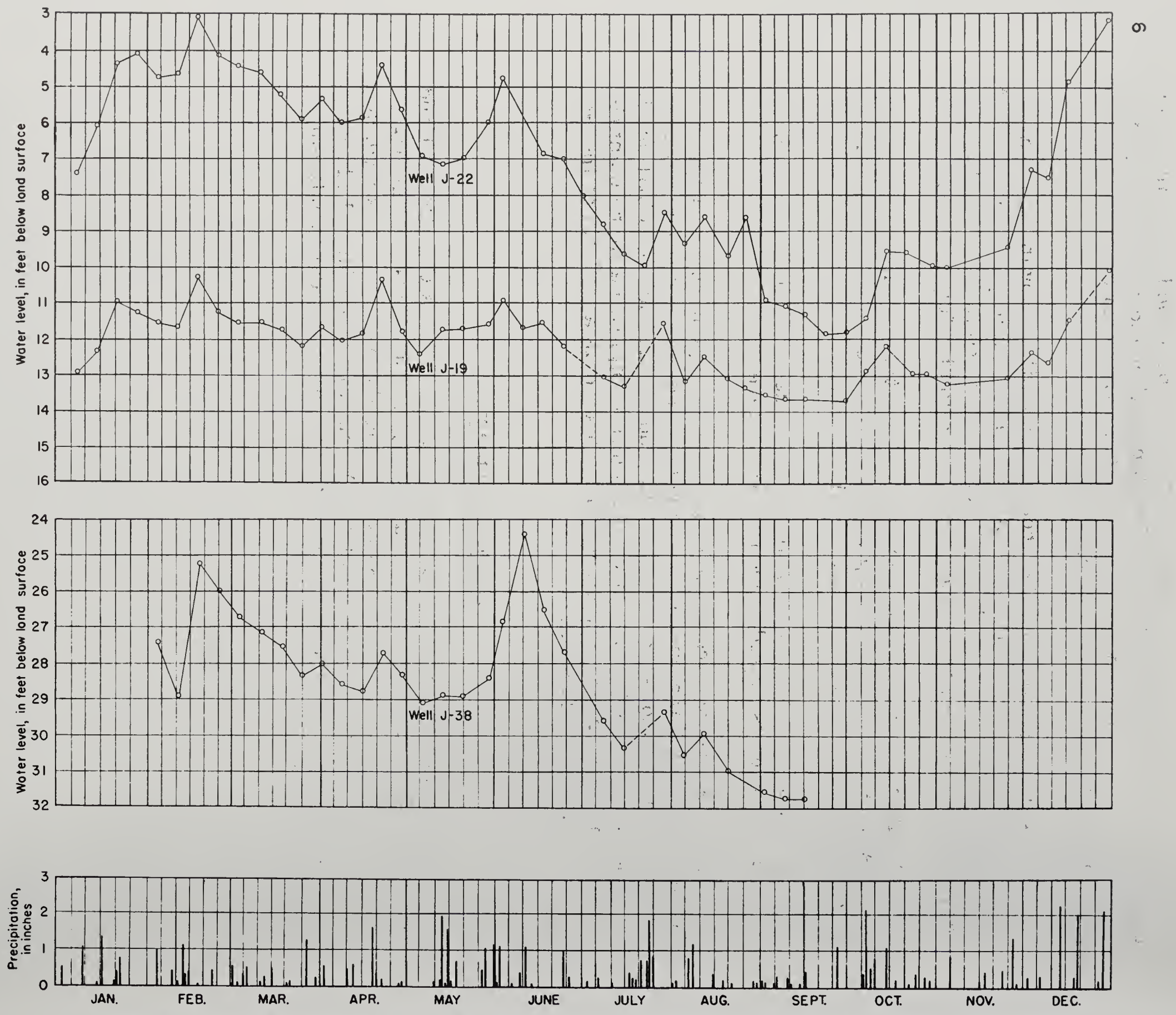


Figure 3 — Changes in water level in wells J-22, J-19, and J-38 and precipitation at Athens, Ala., 1959

Figure 4.—Changes in water level in well J-21 and precipitation at Athens, Ala., 1959

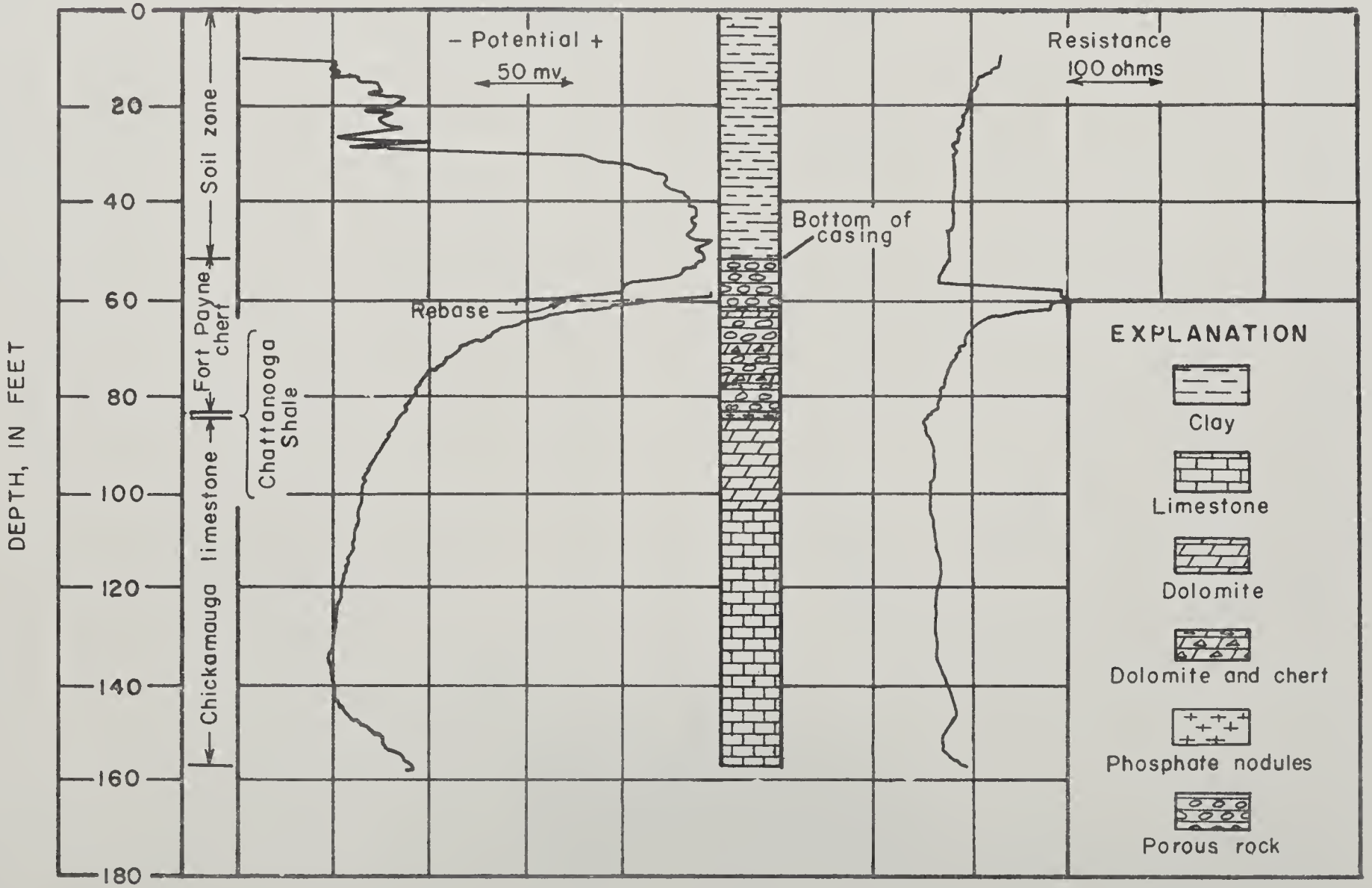


Figure 5.- Lithologic and electric log of test well CT-1.

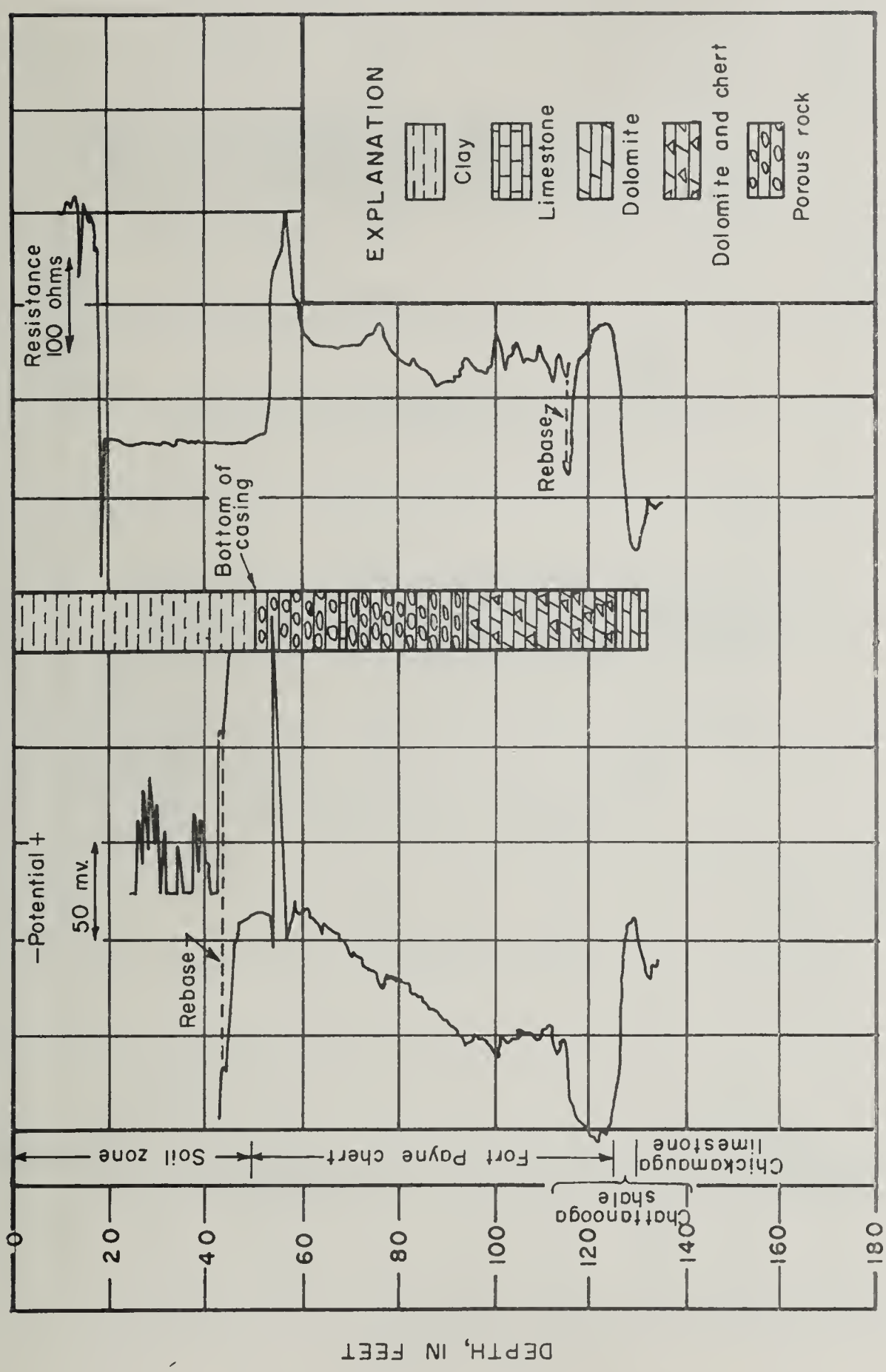


Figure 6.- Lithologic and electric log of test well CT-2.

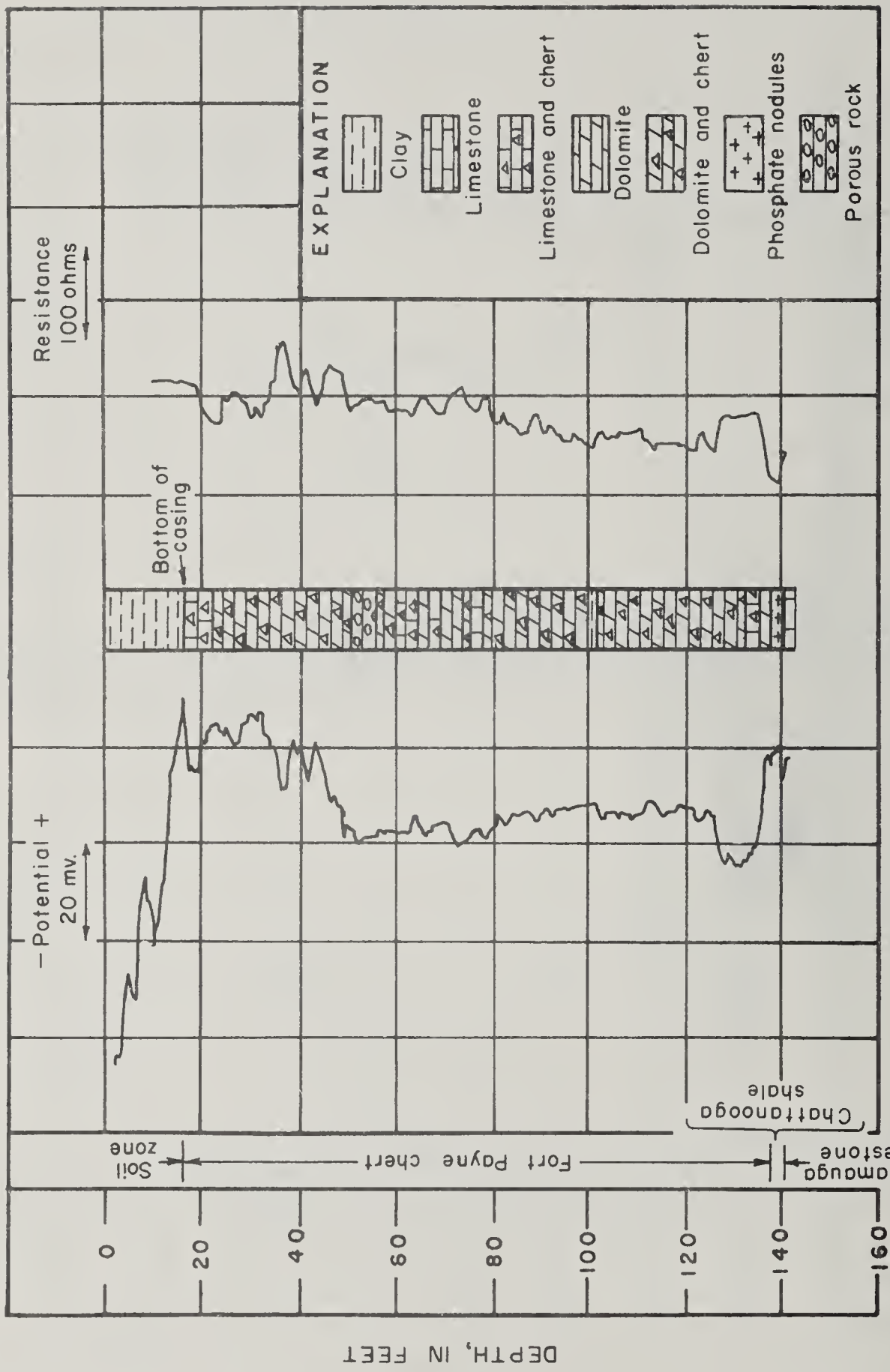


Figure 7.— Lithologic and electric log of test well CT-4.

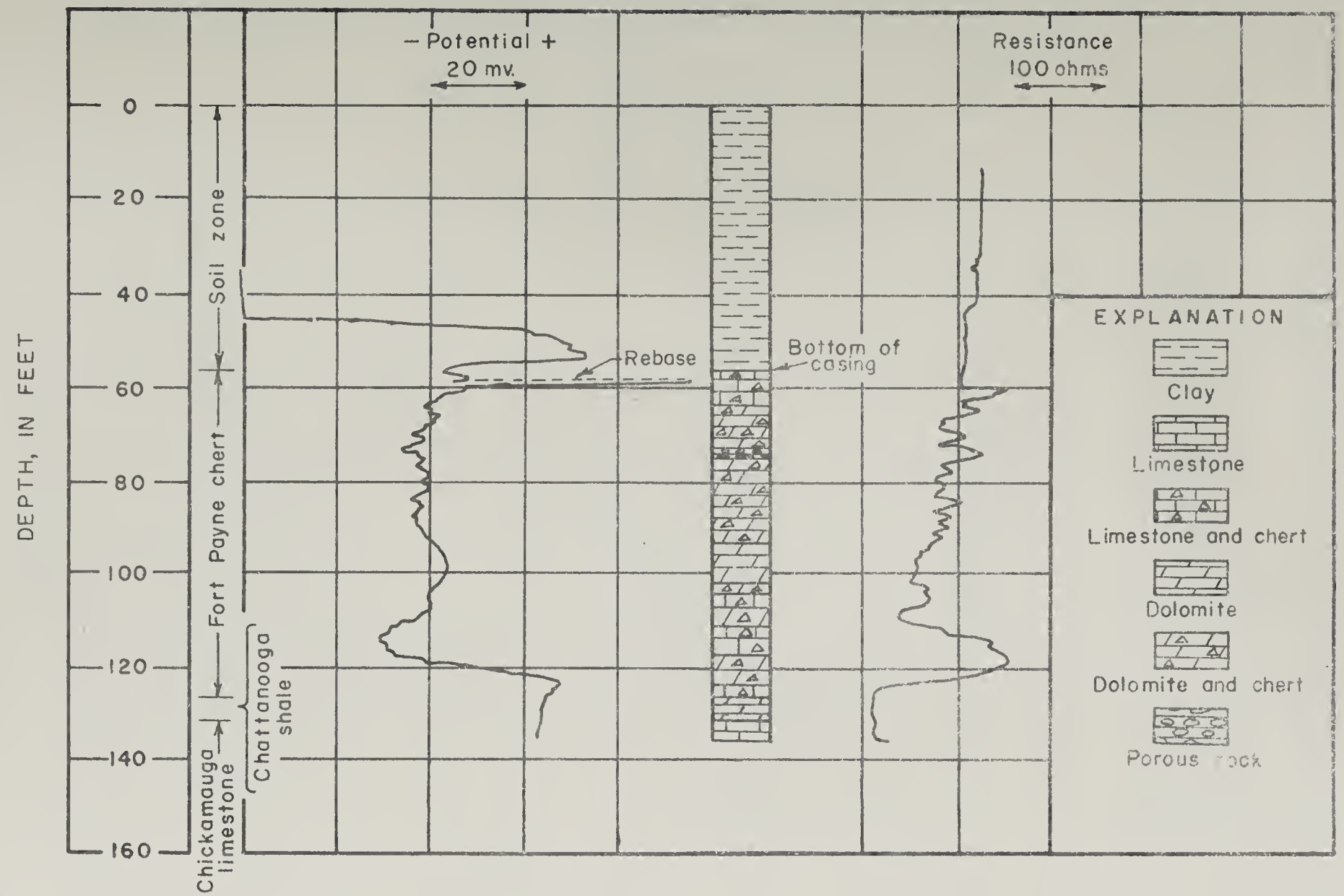


Figure 8.— Lithologic and electric log of test well CT-5.

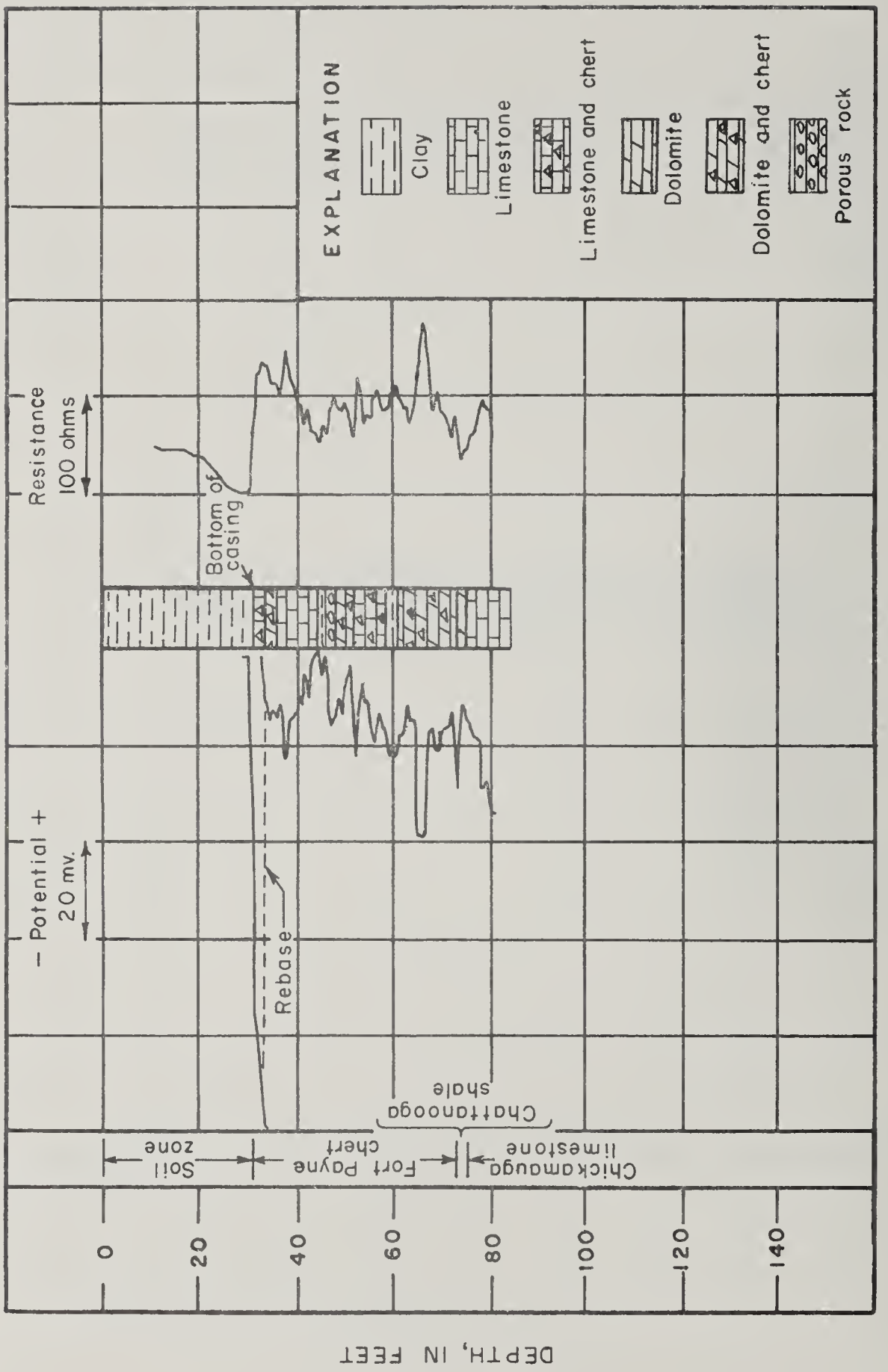


Figure 9.— Lithologic and electric log of test well CT-6.

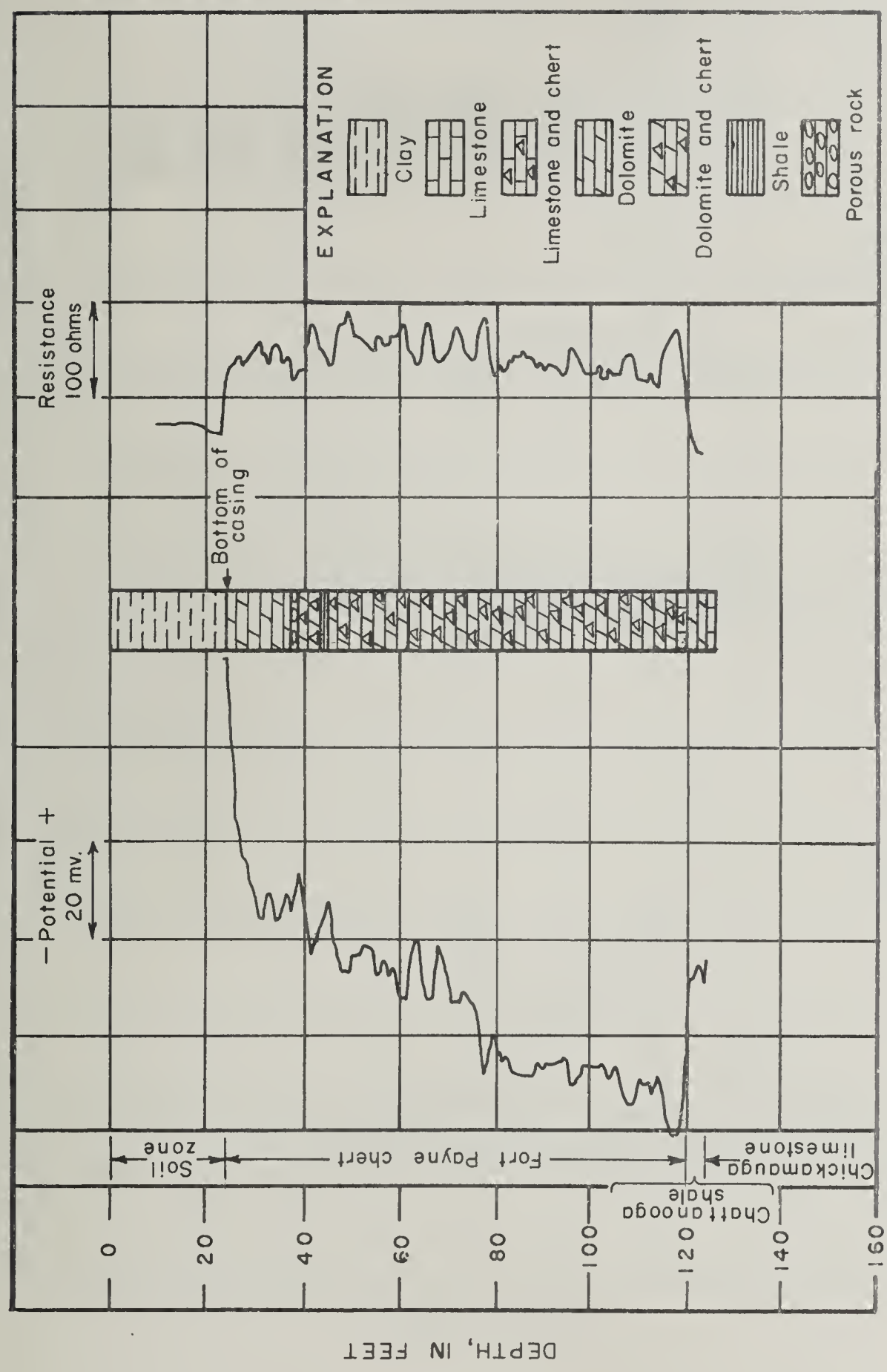


Figure 10.– Lithologic and electric log of test well CT–10.

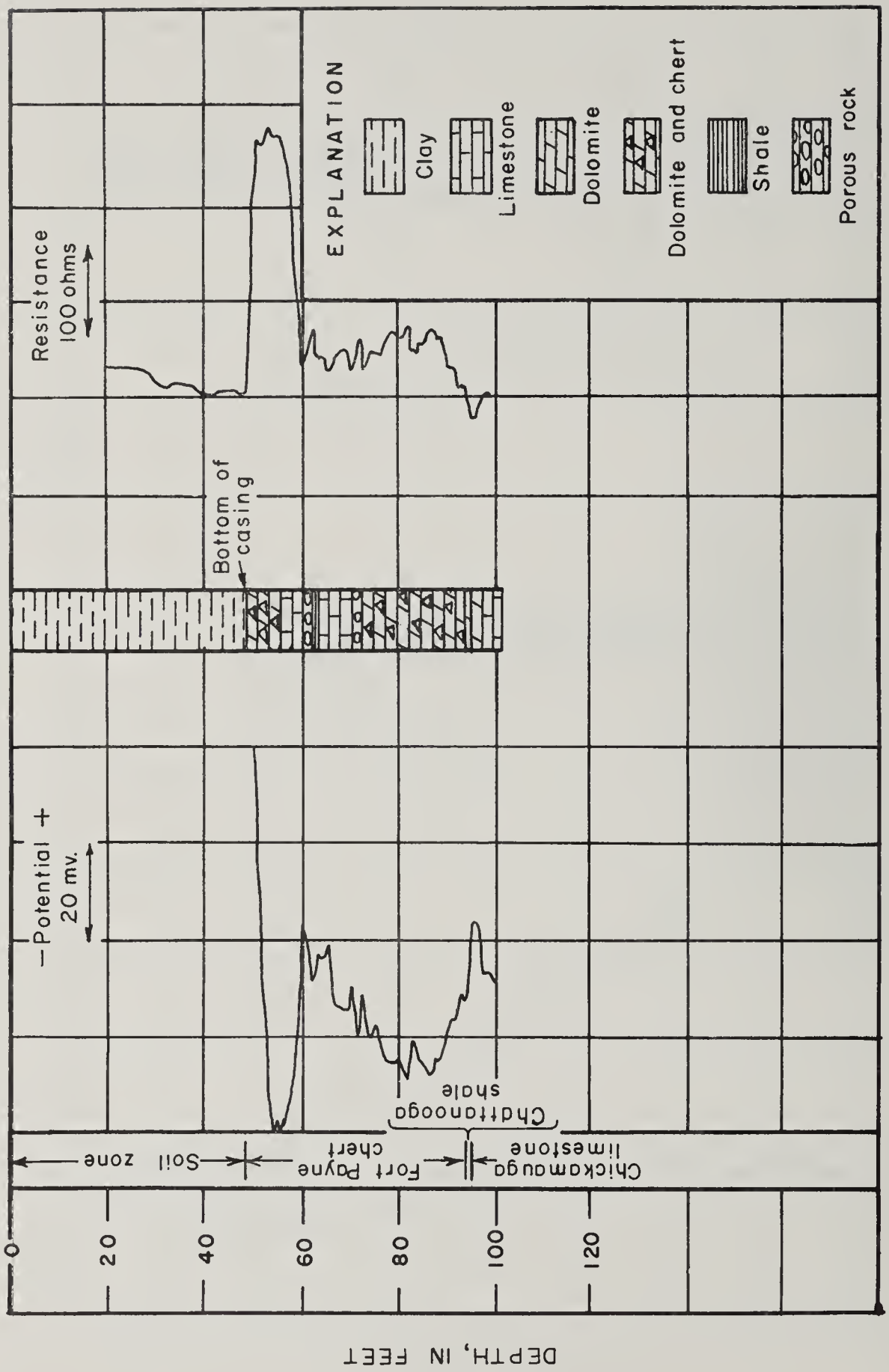


Figure 11.- Lithologic and electric log of test well CT-11.

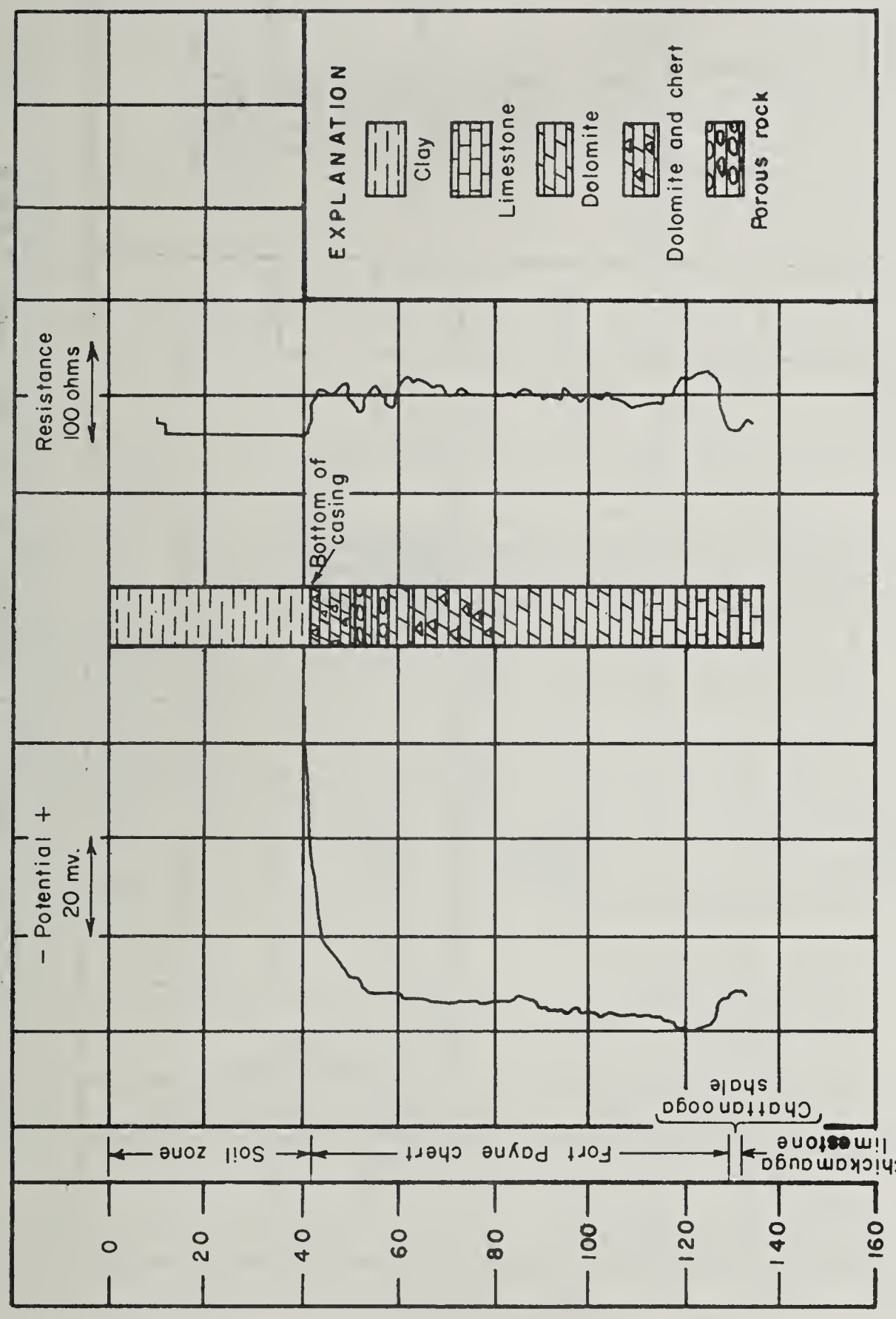


Figure 12.- Lithologic and electric log of test well CT-12.

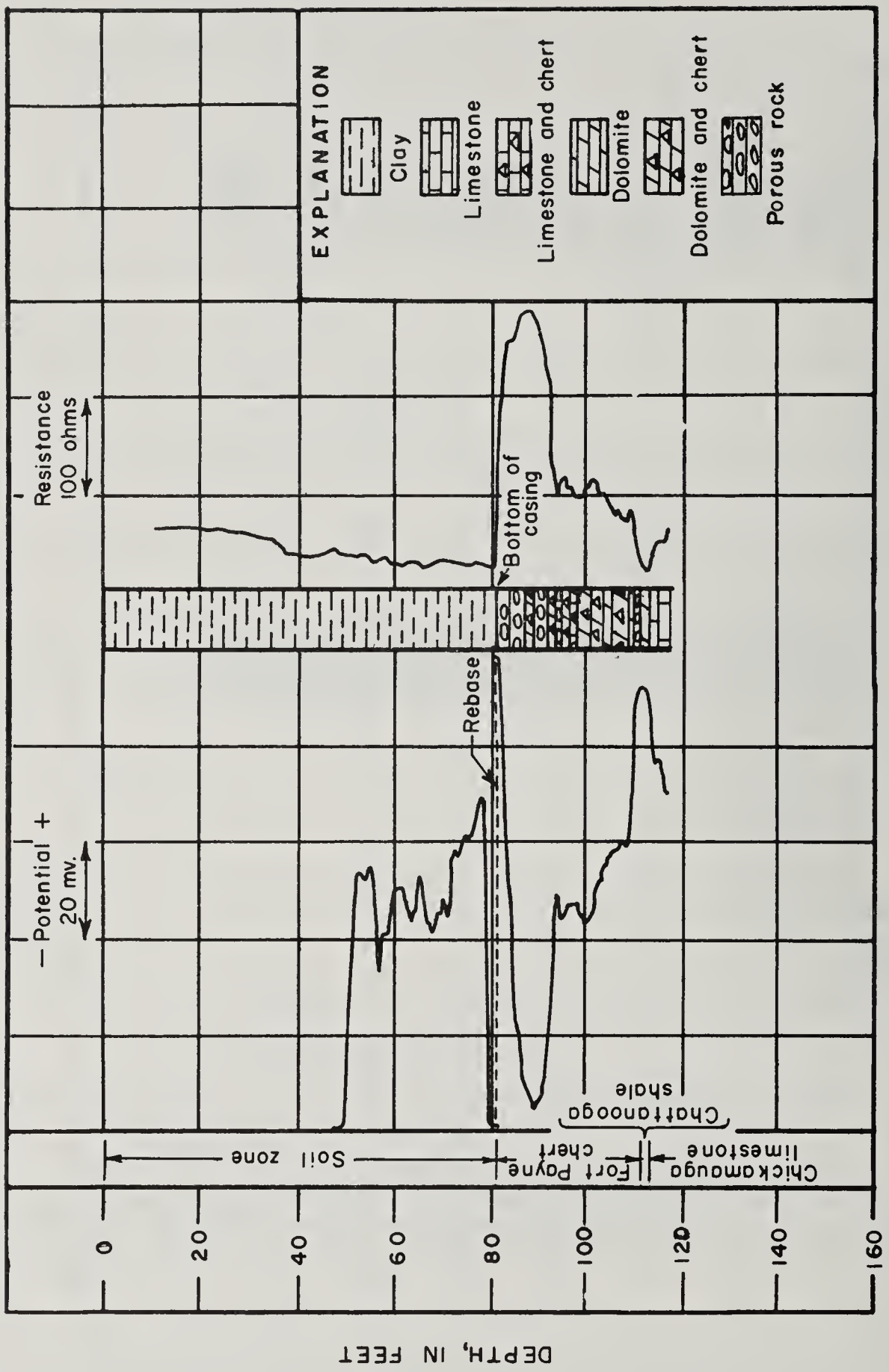


Figure 13.— Lithologic and electric log of test well CT—13.

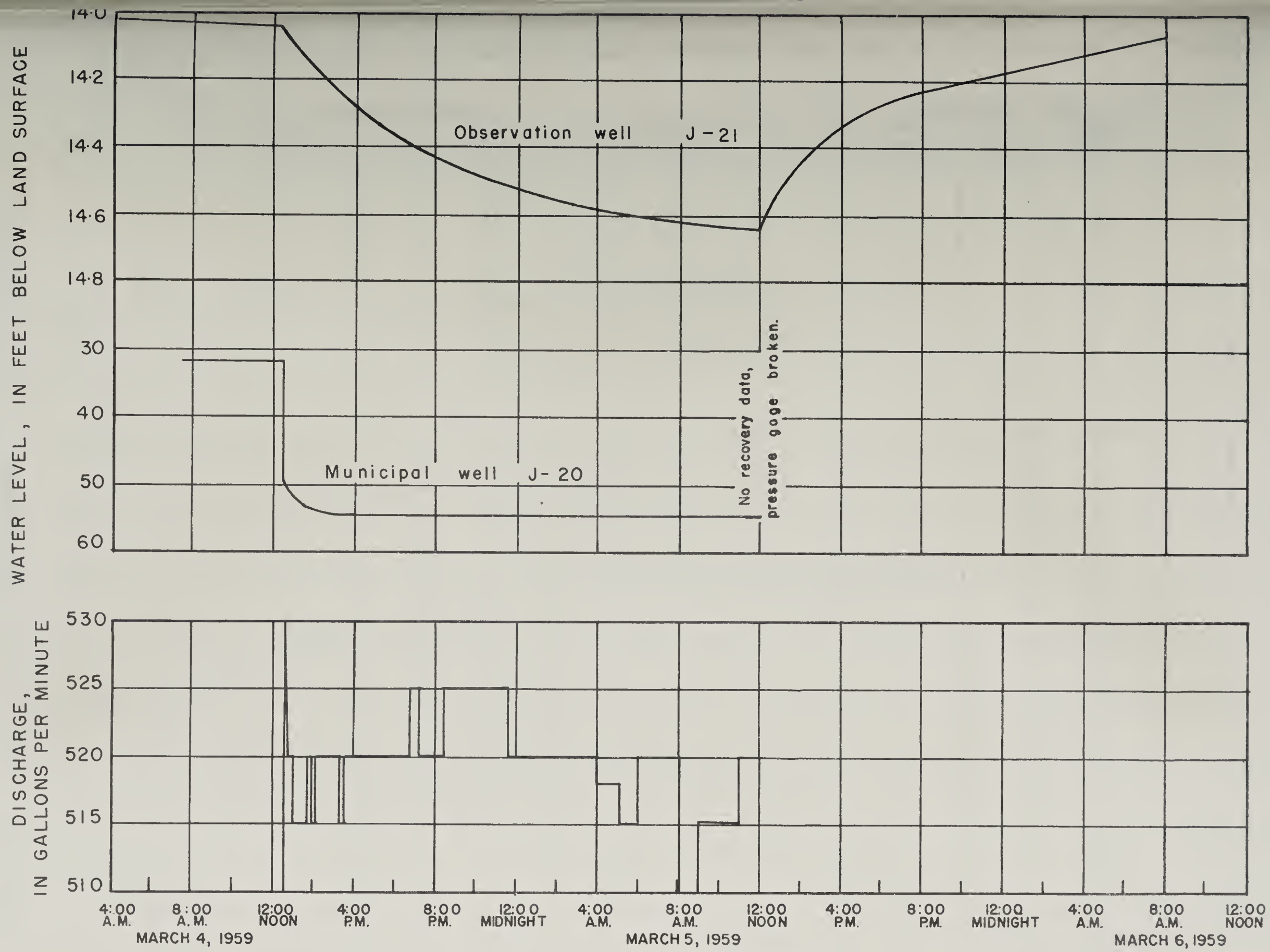


Figure 14.- Fluctuation of water level due to pumping Athens municipal well J-20, March 4-6, 1959.

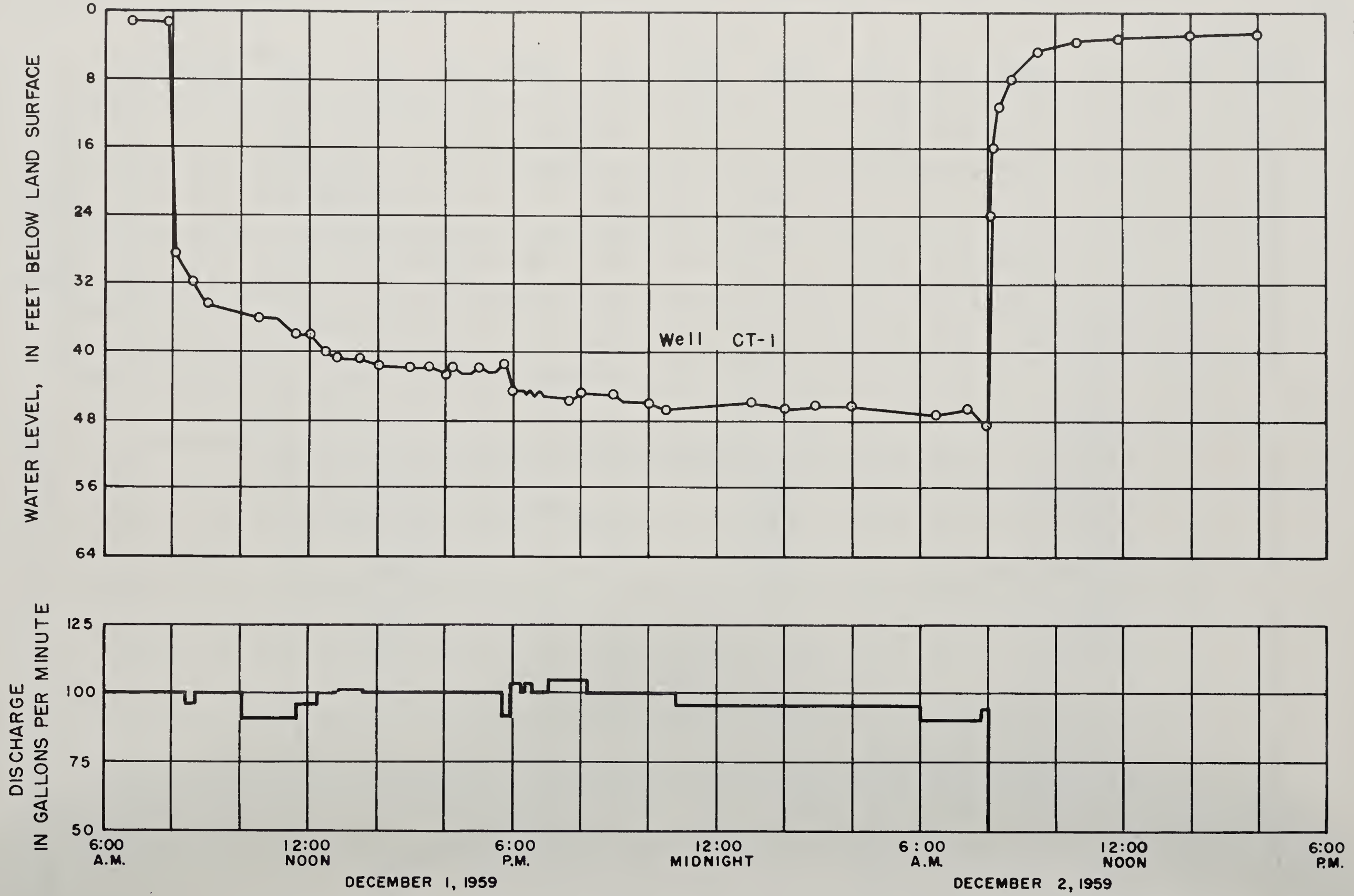


Figure 15.-Fluctuation of water level due to pumping test well CT-1, December 1-2, 1959.

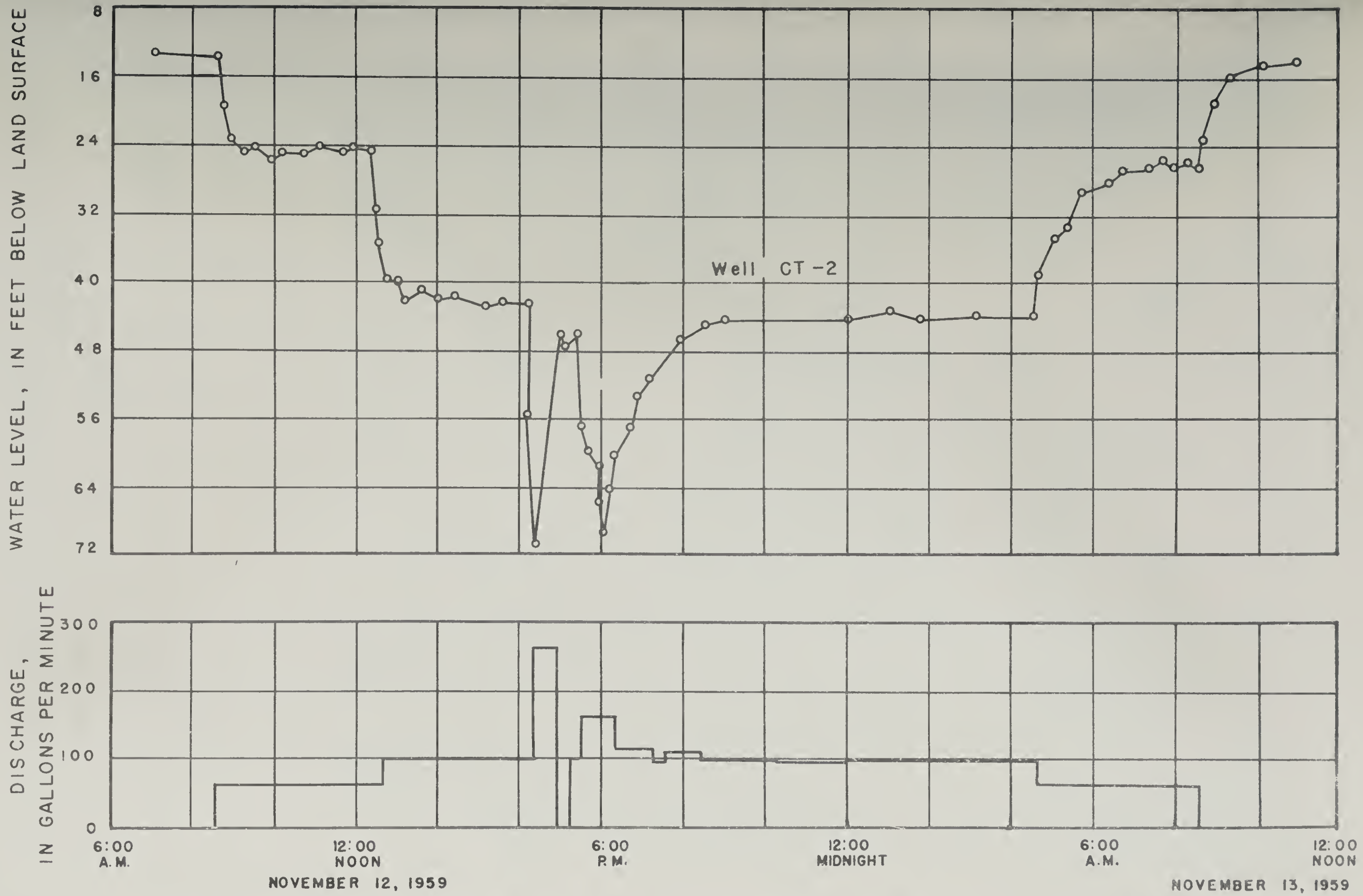


Figure 16.- Fluctuation of water level due to pumping test well CT-2, November 12-13, 1959.

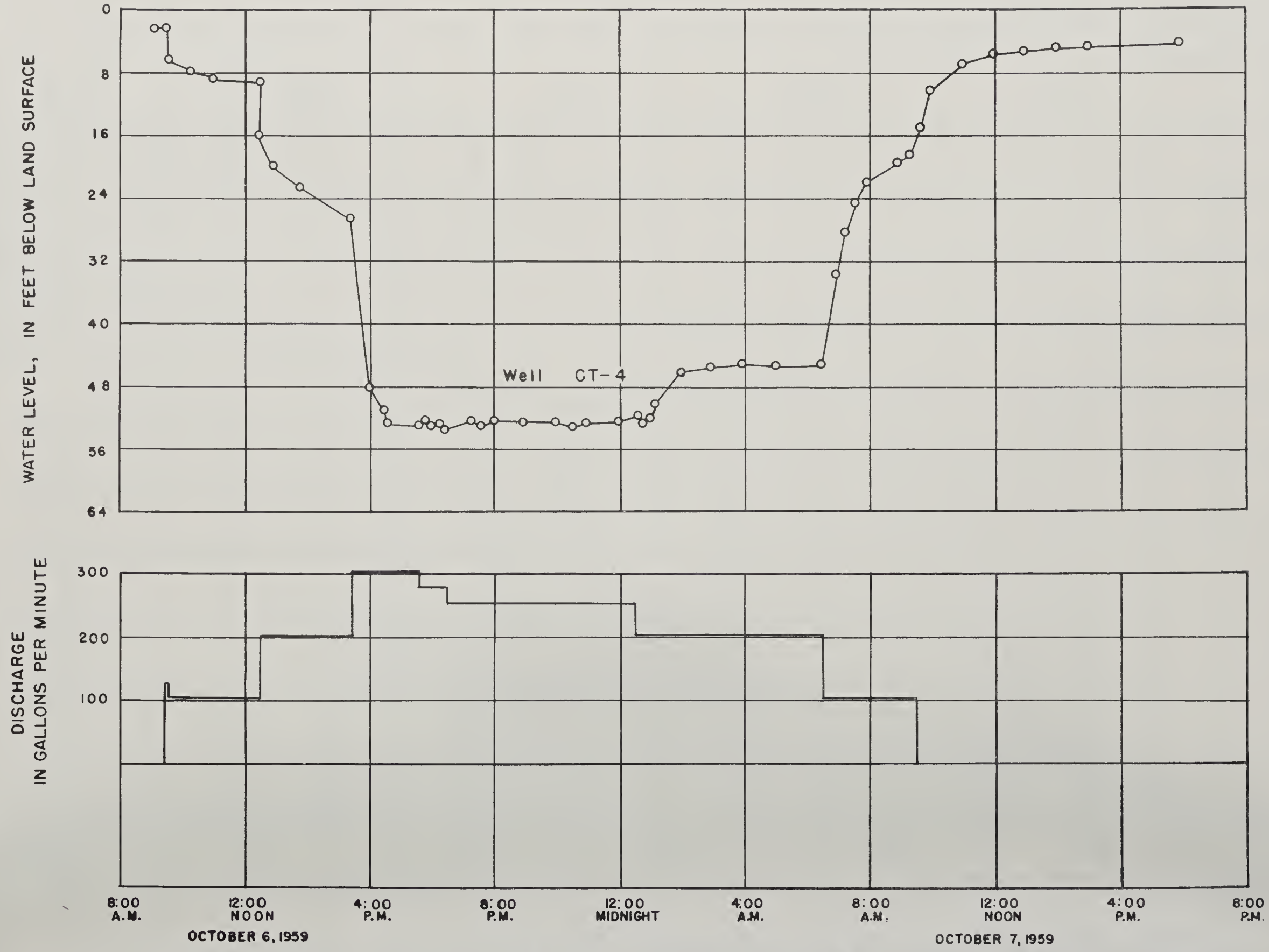


Figure 17.-Fluctuation of water level due to pumping test well CT-4, October 6-7, 1959.

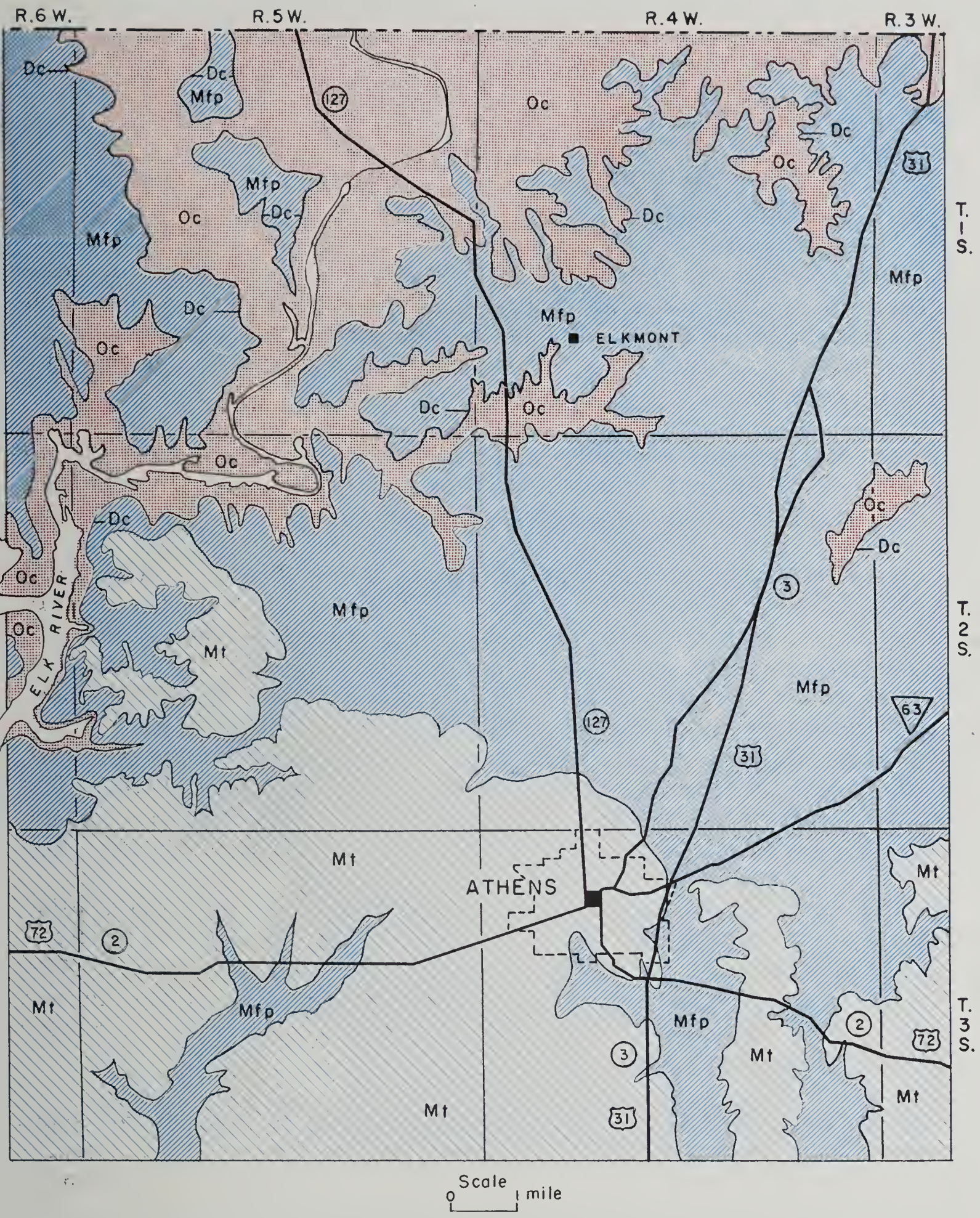


Figure 18.- Generalized geologic map of the Athens area, Alabama.

GEOLOGY

Stratigraphy

The Chickamauga limestone of Ordovician age, the oldest formation that crops out in the Athens area, is exposed in the northern portion of the area where the Elk River and its tributaries have eroded through the overlying formations (fig. 18). A maximum of 300 feet of the formation is exposed.

The Chickamauga consists of dense to coarsely crystalline buff to blue-gray fairly pure to shaly limestone that is in places interbedded with shale. Most of the shale beds are less than 2 feet thick.

Overlying the Chickamauga limestone is the Chattanooga shale of Devonian age. This formation in most places is a black fissile bituminous pyritiferous shale ranging in thickness from less than 1 foot to 8 feet. In the immediate vicinity of Athens, however, the Chattanooga is composed of medium-gray dense conglomeratic dolomite containing phosphate nodules, rounded quartz grains, and fossil tubes of the microscopic worm Spirorbis omphalodes(?). Interbedded with the dolomite are thin layers of sandstone, siltstone, and medium-gray shale. The formation contains as much as 80 percent pyrite. Its thickness in the vicinity of Athens ranges from less than $\frac{1}{2}$ foot to 5 feet.

The Fort Payne chert, of Mississippian age, overlies the Chattanooga shale, and consists of dense to finely crystalline light- to medium-gray and blue-gray extremely siliceous dolomite and limestone. The chert content of the formation varies, but generally decreases toward the top. The thickness of the Fort Payne chert in the Athens area ranges from about 80 to 175 feet.

The Tuscumbia limestone, of Mississippian age, is the youngest formation in the Athens area. It occupies the higher areas of the drainage divides, primarily in the southern parts of the area. The thickness of the formation is unknown because weathering and erosion have removed most of the formation, leaving in most places a deep mantle of dark-red relatively chert-free clay soil.

Structure

The Athens area is situated on the southeastern flank of the Nashville dome, an elliptical dome, which plunges to the southwest. The rocks of the area dip generally southeast about 15 to 20 feet per mile. The regional dip is modified by the presence of gentle anticlines and synclines that have closures of as much as 80 feet. Most of these structures trend northwest and plunge southeast and are asymmetrical, the steepest dips being along their northeastern flanks.

A structure of this type underlies the city of Athens and vicinity. Plate 2, a structure map on the top of the Chattanooga shale, indicates a syncline that plunges southeast and has a dip of about 70 feet per mile on its northeast flank. A portion of the syncline forms a structural basin that extends beneath the city of Athens as shown by the closed contour lines.

In the vicinity of Athens surface topography indicates the structure to some extent; for example, Town Creek flows along or near the axis of the syncline.

The influence of the geologic structure on the occurrence and availability of ground water in the area is indicated by the results of test drilling. Test wells CT-1, -2, -4, -12, and -13, located near the axis of the syncline, yield 100 gpm (gallons per minute) or more. Yields of wells located near or on structural highs range from less than 1 to about 20 gpm.

WATER-BEARING CHARACTER OF ROCKS

Ground water in the Athens area occurs in limestone and dolomite of Ordovician and Mississippian age, in which original openings, joints, and other fractures have been enlarged by the action of circulating ground water.

The Chickamauga limestone yields small to moderate supplies of water to wells. Springs of relatively small yield (less than 15 gpm) are common in the outcrop area, and many of the residents rely on them for their water supply. An exception to the usual low rate of discharge is that of Blowing Spring, A-1, which on January 11, 1960 was discharging at the rate of 3,270 gpm.

The Chattanooga shale is too thin to be of importance as an aquifer.

The Fort Payne chert is the most important aquifer in the area, with the yields ranging from a few gallons per minute from most domestic wells to 520 gpm from the Athens municipal well, J-20.

Ground water occurs in the Fort Payne chert in weathered, porous zones from which the calcareous material has been leached, leaving an open skeletal network of chert. However, open water-bearing cavities are present in the formation.

The Tuscumbia limestone, which is deeply weathered in the Athens area, is extensively tapped by dug wells, which yield only small to moderate supplies for domestic and stock use.

Chert gravel in the residuum supplies sufficient water for domestic and stock supplies. In areas where these deposits are thickest they may be a potential source of large quantities of water for industrial or municipal supplies.

QUALITY OF WATER

Water samples were collected from 58 wells and springs tapping the Chickamauga limestone for preliminary field analysis. The results of these analyses indicate that the chloride content is generally low, ranging from 4 to 110 ppm (parts per million) and averaging 13 ppm (tables 1 and 3). However, water from well D-8 tapping the Chickamauga limestone at a depth of 400 feet had a chloride content of 5,250 ppm and a hardness of 1,520 ppm. The high chloride content and hardness of water from this well is not typical of water obtained from the Chickamauga limestone and is explained in part by the depth at which the formation was penetrated. The results of the analysis of water from well D-8 were not used in computing the average hardness and chloride content of water from the Chickamauga. However, this one analysis indicates the existence of highly mineralized water at depth in the formation. The hardness of water from the upper part of the Chickamauga in 57 samples ranged from 28 to 338 ppm, and averaged 136 ppm.

Water samples were collected from 178 wells and springs in the Fort Payne chert for chemical analysis. The results of these analyses indicate that the chloride content is low, ranging from 2 to 103 ppm and averaging 12 ppm. Water from the Fort Payne is soft to moderately hard, with hardness ranging from 10 to 326 ppm and averaging 56 ppm.

The six water samples collected from the Tuscumbia limestone were from wells tapping the weathered upper part of the formation and, therefore, are not considered representative of the chemical quality of water to be expected from this formation.

Water from the residuum is generally of good quality. In 138 preliminary field analyses the hardness ranged from 5 to 210 ppm and the chloride content ranged from 4 to 103 ppm.

Table 1. --Records of wells and springs in Athens area, Ala.

Well or spring no.: Numbers correspond to those in plate 1 and table 3; asterisk indicates chemical analysis given in table 3.
Type: D, drilled well; Du, dug well; S, spring.
Depth of well and water level: Depths shown in feet are reported; those shown in feet and tenths were measured.
Altitude: Determined by aneroid barometer.
Method of lift: T, turbine; Tj, jet; Tc, centrifugal; Pp, pitcher; Ts, submergible; Pv, rod; M, manual; N, none.
Use: D, domestic; Ind, industrial; Irr, irrigation; N, not used; P, public supply; S, stock.
Water-bearing formation: Oc, Chickamauga limestone; Mfp, Fort Payne chert; Mt, Tuscumbia limestone; R, residuum.

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
A- 1	State of Alabama. .	. . . . .	S	. . .	. . .	Oc	687	. . . .	. . . . .	. . .	N	61	4	60	Known as Blowing Spring. Flow; 3,270 gpm measured 1-11-60.
A- 2	Hamp Barnes	. . . . .	Du	. . .	36	R	915	7.4	1- 4-60	M	D	58	67	180	Inadequate for domestic supply.
A- 3	Buford Holt	Miller Drilling Co.	D	55.5	6	R	918	5.1	. . do . .	Tj	D	. . .	4	28	
A- 4	Dallas W. Hodges.	--White.	D	35	6	R Mfp (?)	895	23.2	1- 7-60	Tj	D	. . .	11	64	
A- 5	Kirb Broadway. . .	. . . . .	Du	28.8	36	R	912	7.5	. . do . .	Tj	D	. . .	4	72	
A- 6	Cecil Wales	. . . . .	Du	22.7	36	R	862	5.6	. . do . .	Tj	D	. . .	18	. . .	Dry at times.
A- 7	Jeff Bond.	. . . . .	Du	25.6	36	R	865	3.4	. . do . .	Tj	D	. . .	75	114	Supplies 2 houses.
A- 8	Mack Robinson. . .	. . . . .	Du	23.0	36	R	841	2.4	. . do . .	Tj	D	. . .	46	100	
B- 1	Roy Rolin	. . . . .	D	71.8	6	Mfp	889	63.1	5-11-59	M	D	59	4	98	
B- 2	Ezra White	. . . . .	D	40	6	Oc	649	. . . .	. . . . .	Pp	S	. . .	. . .	. . .	
B- 3	. . . . do	. . . . .	D	36.4	6	Oc	645	26.8	5- 8-59	M	D	60	25	196	Inadequate for domestic supply.
B- 4	Charles Davis . . .	. . . . .	S	. . .	. . .	Oc	655	. . . .	. . . . .	. . .	D	59	4	152	Estimated flow, 3 gpm on 5-8-59.
B- 5	Frank Waldroup . .	Michael Drilling Co.	D	292	6	Oc	665	42.7	5- 8-59	Pp	S	61	4	28	
B- 6	. . . . do	. . . . do	D	300	6	Oc	675	5.1	. . do . .	. . .	N	58	4	180	Casing: 6-in. to 10 ft. Inadequate for domestic supply.
B- 7	. . . . do	. . . . do	D	200+	6	Oc	676	. . . .	. . . . .	Pp	S	60	25	480	Water sulfurous.
B- 8	Ollie Martindale . .	. . . . .	D	75.3	6	Oc	612	24.1	5- 8-59	M	D	60	4	166	

B- 9	C. Martindale . . .	Cletus Collins . .	D	72.7	6	Oc	601	69.5	5- 8-59	M	D	60	11	184	
B-10	Lonnie Holt	. . . . .	D	38.4	6	Oc	626	10.6	5- 7-59	M	D	59	4	54	
B-11	Frank Waldroup . .	Michael Drilling Co.	D	67	6	Oc	631	. . .	. . . . .	Pp	S	. . .	. . .	. . .	
B-12	. . . . do	. . . . do	D	86	6	Oc	662	8.3	5- 3-59	Pp	S	60	11	144	
B-13	. . . . do	. . . . .	S	. . .	. . .	Oc	665	. . .	. . . . .	. . .	S	61	. . .	. . .	Estimated flow, 30 gpm on 5-8-59.
B-14	Pink Rochelle . . .	. . . . .	S	. . .	. . .	Oc	675	. . .	. . . . .	. . .	D	61	4	54	Estimated flow, 30 gpm on 5-7-59.
B-15	Roy Holt	. . . . .	D	22.8	6	Oc	688	7.4	5- 7-59	M	D	60	4	114	
B-16	Morris Robinson. .	Herman Elliott . .	D	50.9	6	Oc	686	17.3	. . do . .	M	D	60	4	94	
B-17	Buford Stanford . .	. . . . .	D	41.3	6	Oc	697	1.3	. . do . .	M	D	58	110	338	Casing: 6-in. to 6 ft. Water sulfurous.
B-18	Walter Brakefield.	. . . . .	S	. . .	. . .	Oc	710	. . .	. . . . .	Tc	D	61	4	46	Known as Cave Spring. Estimated flow, 150 gpm on 5-7-59.
B-19	Lacy S. Pettus . . .	. . . . .	Du	25.9	48	R	875	7.1	5- 7-59	Tj	D	59	11	104	
B-20	. . . . do	. . . . .	S	. . .	. . .	Mfp	860	. . .	. . . . .	Tc	D,S	60	4	20	Estimated flow, 20 gpm on 5-7-59.
B-21	Elijah Howard . . .	. . . . .	Du	19.3	48	R	891	7.6	5- 7-59	M	D,S	60	. . .	. . .	
B-22	Aron Thomas. . . .	. . . . .	Du	18.7	48	R	894	9.3	. . do . .	M	D	59	82	32	
B-23	J. Hodges	. . . . .	S	. . .	. . .	Oc	689	. . .	. . . . .	. . .	S	60	4	102	Estimated flow, 50 gpm on 5-7-59.
B-24	. . . . do	Michael Drilling Co.	D	49.9	6	Oc	703	20.6	5- 7-59	M	D	60	4	126	Inadequate for domestic supply.
B-25	T. J. Lutter	. . . . .	Du	17.5	48	R	911	11.5	. . do . .	Tj	D	. . .	4	18	
B-26	Glen Holland	. . . . .	D	30	6	R (?)	890	. . .	. . . . .	Tj	D	. . .	4	22	
B-27	R. V. Wales	. . . . .	Du	34.2	48	R	892	23.8	5- 6-59	Tj	D,S	. . .	25	50	
B-28	Floyd Myers	. . . . .	D	20.6	6	R (?)	876	3.7	5- 5-59	Tj	D	. . .	11	32	
B-29	Buford Broadway .	. . . . .	Du	25.9	48	R	867	10.6	5- 6-59	Tc	D	59	. . .	. . .	
B-30	Lester Dawson. . .	Herman Elliott . .	D	42.3	6	Mfp	871	18.4	. . do . .	Tj	D	. . .	4	56	Casing: 6-in. to 30 ft. Rock at 20 ft.
B-31	Paul Dawson	. . . . do	D	36.4	6	Mfp	857	6.9	. . do . .	M	D	61	4	18	Casing: 6-in. to 36 ft. Rock at 24 ft.
B-32	Lillie Smith.	. . . . .	D	15.3	6	Oc	626	7.2	2- 6-59	M	D	57	11	182	Rock at 3 ft.
B-33	. . . . do	. . . . .	S	. . .	. . .	Oc	622	. . .	. . . . .	. . .	S	55	11	100	Estimated flow, 60 gpm on 2-6-59.
B-34	Clyde Huey	. . . . .	D	59.9	6	Oc	611	11.9	5- 7-59	M	N	58	67	246	
B-35	George Bates	. . . . .	Du	34.1	48	R	825	22.8	5- 6-59	Tc	D	. . .	11	24	

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
B-36	. . . . .	. . . . .	S	. . .	. . .	Oc	697	. . .	. . . . .	. . .	N	61	4	84	Known as Hobbs Spring 1. Estimated flow, 150 gpm on 5-6-59.
B-37	. . . . .	. . . . .	S	. . .	. . .	Oc	701	. . .	. . . . .	. . .	N	61	4	92	Known as Hobbs Spring 2. Estimated flow, 300 gpm on 5-6-59.
B-38	J. H. Hobbs.	. . . . .	S	. . .	. . .	Oc	708	. . .	. . . . .	. . .	S	61	4	38	Estimated flow, 40 gpm on 5-6-59.
B-39	. . . . do	. . . . .	S	. . .	. . .	Oc	709	. . .	. . . . .	Tc	D	61	4	68	Estimated flow, 20 gpm on 5-6-59.
B-40	Floyd Pettus	. . . . .	D	47.3	6	Mfp	872	21.5	5- 5-59	M	D	61	18	26	
B-41	W. T. Davis	. . . . .	Du	33.1	60	R	860	26.3	. . do . .	M	D	60	. . .	. . .	
B-42	W. J. Woodfin . . .	. . . . .	Du	27.0	48	R	844	18.6	. . do . .	Tj	D	. . .	82	86	
B-43	E. L. Faulkner . .	. . . . .	Du	24.7	48	R	865	13.0	. . do . .	Tj	D,S	. . .	39	46	
B-44	Pearl Spence	. . . . .	Du	25.2	48	R	891	16.8	. . do . .	M	D,S	58	74	34	
B-45	Carl Robison	. . . . .	Du	27.7	48	R	845	9.4	. . do . .	Tc	D,S	. . .	4	26	
B-46	George Dison. . . .	. . . . .	Du	23.3	48	R	863	8.3	. . do . .	Tc	D,S	. . .	11	20	Well dry at times.
B-47	Henry Wray.	. . . . .	Du	20.2	48	R	842	5.6	. . do . .	M	D	60	4	18	
B-48	Viola Hobbs	. . . . .	D	29.5	6	R (?)	842	16.8	. . do . .	M	D	60	. . .	. . .	
B-49	Limestone County High School.	Michael Drilling Co.	D	225	6	Mfp	842	. . .	. . . . .	Tj	P	. . .	. . .	. . .	Water at 69 ft. Reported to pump 10 gpm.
*B-50	. . . . do	. . . . do	D	225	6	Mfp	841	. . .	. . . . .	Tj	P	60	. . .	. . .	Inadequate for domestic supply.
B-51	--Hanserd.	. . . . .	D	102	6	Mfp	808	. . .	. . . . .	Tj	D	59	25	108	Well dry at times.
B-52	John Morris.	. . . . .	D	44.8	6	Mfp	845	15.0	5- 1-59	Tj	D	60	4	16	Casing: 6-in. to 26 ft. Water at 43 ft.
B-53	. . . . do	. . . . .	D	111.9	6	Mfp	844	9.9	. . do . .	M	D,S	60	60	60	Casing: 6-in. to 26 ft.
B-54	C. M. Officer . . .	. . . . .	D	65	6	Mfp	840	. . .	. . . . .	Tc	D	60	. . .	. . .	
B-55	Harry L. Morris .	. . . . .	D	12.7	6	R	821	0	5- 1-59	M	N	57	. . .	. . .	
B-56	C. V. Mayhall . . .	. . . . .	D	24.7	6	R (?)	811	9.7	4-30-59	. . .	N	. . .	. . .	. . .	

B-57	C. V. Mayhall . . .	. . . . .	D	230	6	Mfp	813	10.2	4-30-59	. . .	N	62	18	86	Oil test well.
B-58	P. D. Thomas . . .	. . . . .	D	30.8	6	. . .	830	. . .	. . . . .	. . .	N	. . .	. . .	. . .	Well dry.
B-59	Westmoreland Farms.	. . . . .	Du	30	48	R	801	. . .	. . . . .	Tj	D	. . .	. . .	. . .	Rock at 24 ft.
C- 1	David Smith.	. . . . .	D	67.9	6	Oc	610	28.5	3- 5-59	M	D	59	18	200	Water sulfurous.
C- 2	. . . . do	. . . . .	D	48.7	6	Oc	583	26.4	. . do . .	M	D	59	46	252	Casing: 6-in. to 4 ft. Water sulfurous.
C- 3	. . . . do	. . . . .	D	90	6	Oc	625	35.8	. . do . .	Tj	D	59	35	266	
C- 4	W. S. Stanford. . .	. . . . .	D	81.6	6	Oc	637	23.4	5-21-59	M	D	61	4	164	Water sulfurous.
C- 5	W. A. Coggins . . .	Herman Elliott . .	D	52.2	6	Oc	657	14.8	. . do . .	Tj	D,S	61	4	172	Casing: 6-in. to 10 ft. Water at 30 and 45 ft.
C- 6	Vernon Thompson.	. . . . do	D	25.6	6	Oc	655	2.7	. . do . .	M	D	61	4	200	Casing: 6-in. to 8 ft.
C- 7	F. W. Blankenship	. . . . .	S	. . .	. . .	Oc	698	. . .	. . . . .	. . .	D,S	61	11	80	Known as Gaston Cave Spring. Estimated flow, 5 gpm on 5-21-59.
C- 8	O. B. Wise	. . . . .	D	54.0	6	Mfp	822	24.3	5-21-59	Tj	D	60	4	50	
C- 9	. . . . do	. . . . .	D	39.1	6	Mfp	823	21.5	. . do . .	M	D,S	60	4	54	
C-10	Marbut Gaston . . .	. . . . .	D	29.8	6	Oc	655	12.8	. . do . .	M	D	62	. . .	. . .	Inadequate for domestic supply.
C-11	Dan Barnett.	Herman Elliott . .	D	78.1	6	Oc	615	19.7	5-18-59	M	D	61	39	232	Do.
C-12	Billy Solcer.	. . . . do	D	41	6	Oc	610	5.8	. . do . .	Tc	D	60	4	40	Casing: 6-in. to 20 ft. Water at 30 ft.
C-13	Boyd Keller.	. . . . .	D	21.9	6	Oc	615	12.5	. . do . .	M	D	60	4	116	Casing: 6-in. to 20 ft. Inadequate for domestic supply.
C-14	Mack Maples	. . . . .	Du	35	48	R	595	. . .	. . . . .	Tc	D,S	60	4	210	
C-15	Willis Bates.	Herman Elliott . .	D	46	6	Oc	612	4.5	5-18-59	Tj	D	61	4	210	Casing: 6-in. to 14 ft.
C-16	Marvin Webb. . . .	. . . . .	D	148.7	6	Oc	703	46.2	. . do . .	M	D	62	11	42	
C-17	Thomas Naves . . .	. . . . .	S	. . .	. . .	Oc	689	. . .	. . . . .	Tc	D	61	4	186	Nonflowing on 5-18-59.
C-18	P. W. Hendrix. . .	. . . . .	S	. . .	. . .	Oc	600	. . .	. . . . .	M	D,S	61	4	124	Known as Beasley Spring.
C-19	G. W. Bates	. . . . .	D	84.9	6	Oc	603	71.8	5-15-59	M	D	. . .	. . .	. . .	Casing: 6-in. to 20 ft. Inadequate for domestic supply. Water sulfurous.
C-20	D. S. Johnson . . .	. . . . .	S	. . .	. . .	Oc	589	. . .	. . . . .	Tc	D	62	4	100	Known as Cedar Bluff Spring. Estimated flow, 40 gpm on 5-15-59.
C-21	J. G. Gatlin.	. . . . .	Du	60.0	60	R	790	48.8	5-14-59	M	D	59	18	60	
C-22	Kenneth Weatherford.	Miller Drilling Co.	D	28	6	Oc	615	2.5	5-12-59	Tc	D	59	4	144	
C-23	. . . . do	. . . . do	D	9.6	6	Oc	601	3.8	. . do . .	Pp	D,S	59	4	30	Casing: 6-in. to 6 ft. Cavity at 7.5 to 9.5 ft.
C-24	T. A. Dubois	. . . . .	S	. . .	. . .	Oc	655	. . .	. . . . .	Tc	D	60	4	94	Estimated flow, 30 gpm on 5-12-59

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
C-25	. . . . .	. . . . .	S	. . .	. . .	Oc	620	. . .	. . . . .	Tc	D,S	60	. . .	. . .	Estimated flow, 30 gpm on 5-12-59.
C-26	Bennie Lovell. . . .	. . . . .	S	. . .	. . .	Oc	578	. . .	. . . . .	. . .	D,S	61	4	76	Known as Blue Spring. Estimated flow, 400 gpm on 5-12-59.
C-27	Drs. Taylor and Hamm.	Michael Drilling Co.	D	48.7	6	Oc	590	10.2	5-12-59	M	D	61	4	90	Casing: 6-in. to 30 ft.
C-28	Hollis Kelly.	. . . . .	Du	38.3	48	R	782	27.9	5-11-59	M	D	60	4	22	
C-29	Tom Spencer	. . . . .	S	. . .	. . .	Oc	650	. . .	. . . . .	. . .	N	61	4	56	Known as Cave Spring. Estimated flow, 40 gpm on 5-11-59.
D- 1	Van Gilbert	. . . . .	D	116.0	6	Oc	705	9.3	1- 8-60	N	N	61	18	200	
D- 2	. . . . do	. . . . .	S	. . .	. . .	Mfp	778	. . .	. . . . .	. . .	N	60	4	50	Known as Monday Spring. Estimated flow, 200 gpm on 1-8-60.
D- 3	Washington Smith .	. . . . .	D	45.0	6	Mfp	825	15.1	1- 8-60	M	D	60	103	94	
D- 4	Doc Davis	. . . . .	D	59.6	6	Mfp	814	16.7	. . do . .	M	D	60	67	120	
D- 5	Sally Harrison . . .	. . . . .	D	45.3	6	Mfp	780	31.2	. . do . .	M	D	61	4	50	
D- 6	West Limestone High School.	. . . . .	D	135	6	Mfp Oc	770	. . .	. . . . .	Tj	N	. . .	. . .	. . .	Dry hole.
D- 7	E. L. Page	. . . . .	D	66.1	6	Oc	745	31.6	1- 8-60	M	D	61	4	58	
D- 8	T. Marbut.	. . . . .	D	400	6	Oc	600	17.9	9- 4-59	N	N	61	5,250	1,520	Unsuitable for domestic supply.
D- 9	State of Alabama. .	. . . . .	S	. . .	. . .	Oc	578	. . .	. . . . .	. . .	N	59	4	70	Known as Salem Spring. Estimated flow, 20 gpm on 1-11-60. Dry in summer.
D-10	Alden Scott	. . . . .	D	82.9	6	Oc	585	10.5	1- 8-60	M	D	. . .	32	264	Inadequate for domestic supply at times.
E- 1	A. S. Gray	. . . . .	Du	39.8	36	R	725	21.6	. . do . .	Tj	D	. . .	11	122	
E- 2	. . . . do	. . . . .	Du	27.8	36	R	600	24.3	. . do . .	N	N	58	4	124	
E- 3	Clarence Christensen.	. . . . .	D	22	6	Oc	575	6.4	. . do . .	Pv	D	. . .	18	258	
E- 4	Sportsman's Club .	. . . . .	S	. . .	. . .	Oc	580	. . .	. . . . .	Tj	P,S	61	4	60	Estimated flow, 20 gpm on 1-11-60.
E- 5	Alonzo Clark	. . . . .	Du	37.8	36	R	748	20.6	1-11-60	M	D	. . .	25	44	Inadequate for domestic supply at times.

F- 1	C. P. McShea . . .	. . . . .	Du	28.4	48	R	723	7.2	3-12-59	Tj	D	. . .	46	80	
F- 2	M. D. Witty.	. . . . .	S	. . .	. . .	Oc	685	. . .	. . . . .	Tc	D,S	55	11	60	Estimated flow, 40 gpm on 3-12-59.
F- 3	. . . . do	. . . . .	Du	34	48	R	782	20.1	3-12-59	M	D	59	32	122	Inadequate for domestic supply.
F- 4	Tennessee Valley Authority.	. . . . .	D	. . .	6	Oc	584	. . .	. . . . .	Pv	D	. . .	18	140	Water sulfurous.
F- 5	R. E. Beasley . . .	. . . . .	Du	16.9	48	R	571	9.4	3-13-59	Tj	D	61	4	44	Inadequate for domestic supply in summer.
F- 6	David Seamans . . .	. . . . .	S	. . .	. . .	Oc	590	. . .	. . . . .	. . .	D	56	4	72	Estimated flow, 20 gpm on 3-13-59.
F- 7	. . . . do	. . . . .	S	. . .	. . .	Oc	600	. . .	. . . . .	. . .	N	57	4	66	Do.
F- 8	W. B. McLemore .	. . . . .	Du	27.3	48	R	730	7.2	3-13-59	Tj	D	. . .	39	64	
F- 9	J. E. Wilson	. . . . .	Du	33.5	36	R	760	23.3	. . do . .	Tj	D	. . .	4	46	
F-10	Eileen Williamson.	Michael Drilling Co.	D	94.9	6	Mfp Oc	781	13.0	4-18-59	Ts	D,S	62	11	610	Casing: 6-in. to 48 ft. Water at 40 and 87 ft. Pumped 30 gpm; drawdown 29 ft. after $4\frac{1}{2}$ hours. Electric log in files of U.S. Geol. Survey.
F-11	. . . . do	. . . . .	Du	31.8	48	R	778	10.8	3-13-59	Tc	D,S	59	25	48	
F-12	S. H. Russell. . . .	--Gaston	D	54.9	6	Mfp	736	21.9	3-12-59	M	D	60	4	12	Casing: 6-in. to 12 ft. Rock at 5 ft.
F-13	--Moyers	. . . . .	D	47.8	6	Mfp	743	35.7	. . do . .	M	D	60	4	16	
F-14	Archie Goodin . . .	Hurst Machine Works.	D	90	6	Mfp	767	37.6	3-18-59	Tj	D	. . .	4	26	Water at 70 ft.
F-15	L. E. Goodin	. . . . do	D	43.9	6	Mfp	770	9.7	. . do . .	Tj	D	. . .	18	66	
F-16	Macon Bedding-field.	. . . . .	Du	29.4	48	R	782	8.9	3-17-59	Tj	D	. . .	4	24	Rock at 20 ft.
F-17	L. E. Goodin	Hurst Machine Works.	D	46.5	6	Mfp	731	9.2	. . do . .	Tj	D	. . .	11	24	
F-18	Arlis Kirk.	--Bee.	D	39.7	6	R	760	14.4	. . do . .	. . .	N	60	11	40	
F-19	J. S. Griffin	. . . . .	D	70	6	Mfp	758	. . .	. . . . .	Tj	D	. . .	. . .	. . .	
F-20	J. C. Shannon . . .	. . . . .	S	. . .	. . .	Mfp	680	. . .	. . . . .	. . .	D	61	4	20	
F-21	. . . . do	. . . . .	Du	28.1	48	R	715	12.5	3-17-59	M	D	. . .	25	5	
F-22	M. D. Reece	. . . . .	Du	16.3	48	R	708	2.9	. . do . .	Tj	D,S	. . .	32	6	
F-23	Doyce Stone	. . . . .	Du	38.2	48	R	728	20.8	. . do . .	Tj	D	59	53	86	
F-24	F. F. Dawson . . .	. . . . .	S	. . .	. . .	Mfp	688	. . .	. . . . .	. . .	D	61	4	40	Known as Dawson and Dupree Spring. Estimated flow, 80 gpm on 3-19-59.
F-25	R. McConnell. . . .	. . . . .	Du	25.0	48	R	732	8.0	3-18-59	M	D	58	18	34	
F-26	Leroy Goodin	Hurst Machine Works.	D	58.5	6	Mfp	751	8.6	. . do . .	Tj	D	. . .	4	22	Casing: 6-in. to 20 ft.

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								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
F-27	Leroy Goodin. . . .	Herman Elliott. .	D	53.5	6	Mfp	750	5.6	3-18-59	Tj	D	60	4	14	Casing: 6-in. to 12 ft.
F-28	W. P. Nicholson. .	. . . . .	Du	28.2	48	R	726	2.7	3-19-59	Tj	D	. . .	4	26	
F-29	Cleveland Kelley. .	. . . . .	D	45	6	Mfp	761	15.0	. . do . .	. . .	N	. . .	. . .	. . .	
F-30	W. L. Williams . .	. . . . .	Du	45.9	48	R	745	19.3	. . do . .	Tj	D,S	59	18	32	
F-31	J. W. Black.	Herman Elliott. .	D	42	6	R (?)	725	. . .	. . . . .	Ts	D	58	4	14	Water at 32 ft.
F-32	J. C. Swanner . . .	. . . . .	Du	17.4	48	R	751	8.1	3-19-59	Tc	D	59	4	16	
F-33	Nancy Coleman. . .	. . . . .	Du	15.3	48	R	675	12.9	. . do . .	M	D	56	11	44	
F-34	J. H. Nash	. . . . .	Du	27	48	R	695	. . .	. . . . .	Tc	D	. . .	4	32	
F-35	J. W. Haggard. . .	. . . . .	D	110	6	Mfp	649	. . .	. . . . .	Tj	D	. . .	4	94	
F-36	Henry Pendergrass.	. . . . .	Du	21.8	48	R	743	9.8	4- 3-59	Tj	D	55	67	94	
F-37	King Gover	. . . . .	Du	30.6	48	R	735	15.0	. . do . .	Tj	D	61	25	32	
F-38	L. W. Evans	. . . . .	S	. . .	. . .	Mfp	727	. . .	. . . . .	Tc	D	58	4	24	Estimated flow, 80 gpm on 4-3-59.
F-39	Kathleen Langley .	. . . . .	D	520	6	Mfp	750	4.0	4- 6-59	. . .	N	. . .	. . .	. . .	Oil test well. See Bull. 64, Geol. Survey of Ala., for log.
F-40	J. C. Farmer . . .	. . . . .	D	49.5	6	Mfp	735	3.7	. . do . .	Tj	D	61	4	26	
F-41	J. V. Bennett. . . .	. . . . .	D	64.1	6	Mfp	733	2.0	. . do . .	Tj	D	59	4	48	
G- 1	W. T. Norton. . . .	. . . . .	Du	44.8	48	R	819	30.7	2- 9-59	Tj	D	. . .	18	38	
G- 2	Robert Lauderdale	. . . . .	Du	17.8	48	R	812	15.1	. . do . .	Tc	D,S	. . .	18	36	
G- 3	Hugh Pepper	. . . . .	Du	27.9	48	R	801	6.5	. . do . .	Tj	D	. . .	18	40	
G- 4	--Clay	. . . . .	S	. . .	. . .	Mfp	740±	. . .	. . . . .	Tc	D,S	61	4	46	Estimated flow, 50 gpm on 2-9-59.
G- 5	Carl Witt.	. . . . .	S	. . .	. . .	Mfp	725	. . .	. . . . .	Tc	D,S	61	18	64	Estimated flow, 30 gpm on 2-6-59.
G- 6	. . . . do	. . . . .	S	. . .	. . .	Mfp	735	. . .	. . . . .	. . .	. . .	57	11	44	Estimated flow, 40 gpm on 2-6-59.
*G- 7	. . . . do	. . . . .	S	. . .	. . .	Mfp	715	. . .	. . . . .	. . .	. . .	57	4	38	Estimated flow, 80 gpm on 2-6-59.
G- 8	J. W. Living	. . . . .	Du	26.6	48	R	753	24.8	2- 6-59	Tc	D	. . .	11	70	

G- 9	C. V. Mayhall . . .	. . . . .	D	48.6	6	Mfp Oc (?)	752	26.1	. . do . .	M	D,S	60	25	320	Casing: 6-in. to 10 ft.
G-10	Mack Maples	. . . . .	S	. . .	. . .	Mfp	720	. . .	. . do . .	Tc	D,S	61	11	66	Estimated flow, 25 gpm on 2-6-59.
G-11	Will Whitt	. . . . .	D	29.6	6	R (?)	737	13.5	. . do . .	M	D	60	82	190	
G-12	. . . . do	. . . . .	S	. . .	. . .	Mfp	729	. . .	. . . . .	N	. . .	56	11	68	Estimated flow, 35 gpm on 2-6-59.
G-13	Limestone County.	. . . . .	S	. . .	. . .	Mfp	738	. . .	. . . . .	Tc	D	60	11	40	Known as Williams Spring. Estimated flow, 200 gpm on 2-6-59.
G-14	R. Harris	. . . . .	D	48.0	6	Mfp	762	32.3	2- 9-59	M	D	61	25	52	
G-15	. . . . do	. . . . .	D	30.2	6	R (?)	772	19.7	. . do . .	M	D	62	11	32	
G-16	Francis Black . . .	. . . . .	Du	25.0	36	R	766	2.7	2- 6-59	Tc	D	. . .	18	66	Inadequate for domestic supply at times.
G-17	Carl C. Huber . . .	. . . . .	Du	30.7	48	R	780	17.0	. . do . .	Tj	D	. . .	11	16	
G-18	Mike Brooks	. . . . .	Du	21.0	48	R	782	9.9	. . do . .	Tj	D	. . .	. . .	. . .	
G-19	. . . . do	. . . . .	S	. . .	. . .	Mfp	778	. . .	. . . . .	. . .	. . .	56	11	24	Estimated flow, 50 gpm on 2-6-59.
G-20	John Cluxton	. . . . .	Du	26.3	48	R	820	13.9	2- 5-59	Tc	D	. . .	11	26	
G-21	K. C. Holt.	. . . . .	S	. . .	. . .	Mfp	762	. . .	. . . . .	. . .	S	56	11	18	Estimated flow, 30 gpm on 2-5-59.
G-22	. . . . do	. . . . .	Du	44.1	48	R	808	13.7	2- 5-59	M	D,S	59	11	42	
G-23	Gordon Barksdale.	. . . . .	D	150	6	Mfp	800	. . .	. . . . .	Tj	D	59	4	48	Casing: 6-in. to 48 ft.
G-24	Lloyd Muse	. . . . .	D	50.8	6	Mfp	767	2.4	2- 5-59	Tj	D	60	11	46	
G-25	R. C. Arnett	. . . . .	S	. . .	. . .	Mfp	759	. . .	. . . . .	Tc	D,S	59	11	36	Estimated flow, 30 gpm on 2-5-59.
G-26	Huston Whitt	. . . . .	Du	20.9	48	R	790	4.5	2- 4-59	Tj	D	. . .	18	36	Inadequate for domestic supply at times.
G-27	. . . . .	. . . . .	Du	23.9	48	R	776	7.2	1-27-59	. . .	N	. . .	. . .	. . .	
G-28	H. A. Yarbrough .	Michael Drilling Co.	D	71.0	6	Mfp	791	15.2	. . do . .	M	D,S	61	18	16	Reported to pump 45 gpm; drawdown 0.3 ft. after 3 hours.
G-29	Bruce Sherrill . . .	. . . . .	D	445	8	Mfp	772	5.8	2- 5-59	. . .	N	. . .	. . .	. . .	Oil test well. See Bull. 64, Geol. Survey of Ala., for log.
G-30	Lloyd McNatt	Herman Elliott . .	D	41.0	6	Mfp	756	1.2	1-27-59	. . .	N	53	18	194	Casing: 6-in. to 17 ft. Inadequate for any supply.
G-31	. . . . do	. . . . do	D	60	6	Mfp	756	0	. . do . .	Tj	D	58	11	64	Casing: 6-in. to 14 ft.
G-32	J. T. Coffman . . .	. . . . .	Du	25.9	48	R	765	7.3	. . do . .	Tc	D	. . .	11	26	
G-33	E. L. Nelson. . . .	. . . . .	Du	26.5	48	R	773	2.8	1-27-59	Tj	D,S	. . .	32	62	Inadequate for domestic and stock supply.
G-34	Robert Whitworth, Jr.	Michael Drilling Co.	D	78	6	Mfp	765	1.0	. . do . .	Tj	D	59	18	36	Casing: 6-in. to 30 ft.

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
G-35	Byram Collier . . .	Michael Drilling Co.	D	. . .	6	Mfp	765	. . .	. . . . .	Tj	D	. . .	11	62	
G-36	A. D. Dugger, Jr.	. . . . .	Du	25.4	36	R	751	2.9	1-25-59	Tj	D	. . .	11	22	
G-37	Joel Smith	Hurst Machine Works.	D	120.4	6	Mfp	775	18.6	. . do . .	Tc	D	. . .	11	122	Casing: 6-in. to 35 ft.
G-38	C. C. Varnell . . .	. . . . .	Du	30.2	48	R	765	15.3	. . do . .	M	D,S	59	25	102	
G-39	Piney Chapel School.	. . . . .	D	210	6	Mfp	782	. . .	. . . . .	Tj	P	. . .	18	106	
G-40	T. K. O'Ran	Hurst Machine Works.	D	167	6	Mfp	775	4.8	1-25-59	Ts	D, P	. . .	18	40	
G-41	Gilbert Black	. . . . .	Du	22.4	48	R	776	7.4	1-20-59	Tc	D	57	18	20	
G-42	Melvin Holt	. . . . .	S	. . .	. . .	Mfp	719	. . .	. . . . .	. . .	N	57	11	24	Estimated flow, 50 gpm on 1-20-59.
G-43	. . . . do	. . . . .	Du	33.3	60	R	741	17.2	1-20-59	M	D	59	11	38	
G-44	M. S. Blackburn. .	. . . . .	S	. . .	. . .	Mfp	739	. . .	. . . . .	. . .	S	61	11	34	Do.
G-45	. . . . do	. . . . .	Du	35.6	48	R	769	28.4	1-20-59	Tj	D,S	61	11	24	
G-46	J. H. Newby	. . . . .	Du	. . .	36	R	712	. . .	. . . . .	Tj	D,S	. . .	18	136	
G-47	Willis Tuten.	. . . . .	Du	15.6	48	R	755	1.8	1-14-59	Tj	D	55	11	34	
G-48	State of Alabama. .	. . . . .	D	57.9	6	Mfp	777	7.4	1-25-59	. . .	N	61	18	10	
G-49	M. M. Culps	Michael Drilling Co.	D	. . .	6	Mfp	747	. . .	. . . . .	Tj	D	. . .	11	12	Reported to contain iron.
G-50	T. J. McDonald . .	. . . . do	D	48.8	6	Mfp	726	12.3	5-18-59	Tj	D	. . .	. . .	. . .	Water from 40 to 50 ft.
G-51	Leon Alfrey	. . . . .	D	140.0	8	Mfp	740	2.1	1-13-59	. . .	N	55	11	30	Casing: 8-in. to 50 ft. Electric log in files of U.S. Geol. Survey.
G-52	W. S. Orman	Michael Drilling Co.	D	77.5	6	Mfp	751	6.2	. . do . .	Tj	D	61	25	44	
G-53	M. C. Brooks . . .	. . . . .	Du	13.5	48	R	720	11.3	. . do . .	Tj	D	. . .	18	78	
G-54	J. E. Legg	Hurst Machine Works.	D	80	6	Mfp	776	. . .	. . . . .	Tj	D,S	. . .	11	60	Casing: 6-in. to 75 ft.

G-55	H. A. Rice	. . . . .	D	67.5	6	Mfp	777	18.4	1-12-59	Tj	D	62	11	32	
G-56	--Mitchell	. . . . .	D	67.8	6	Mfp	777	19.9	. . do . .	Tj	D	. . .	11	24	
G-57	M. A. Russell . . .	. . . . .	D	50	6	Mfp	777	. . .	. . . . .	Tj	D	59	. . .	. . .	
G-58	H. Pack, Jr.	Michael Drilling Co.	D	64.4	6	Mfp	768	3.5	1-12-59	Tj	D,S	. . .	11	60	
G-59	A. T. Ashford . . .	. . . . .	D	64	6	Mfp	771	13.2	1- 7-59	Tj	D	. . .	11	24	Casing: 6-in. to 40 ft.
G-60	Lawrence Baugher	. . . . .	Du	33.1	48	R	754	10.3	1-12-59	Tc	D,S	. . .	32	44	
G-61	G. H. Davis.	. . . . .	Du	22.5	48	R	736	8.6	. . do . .	Tj	D,S	57	103	114	
G-62	Winston Garth . . .	. . . . .	S	. . .	. . .	Mfp	719	. . .	. . . . .	Tc	S	60	11	88	Known as Friend Spring. Estimated flow, 100 gpm on 1-12-59.
G-63	R. Bennett.	Macon Hale	D	325	6	R Oc	735	4.2	1- 7-59	Ts	D	. . .	230	684	Casing: 6-in. to 50 ft. Driller's, electric, and sample logs in files of U.S. Geol. Survey.
G-64	W. Van Gilbert. . .	Michael Drilling Co.	D	52.4	6	Mfp	708	4.2	. . do . .	Tj	D	57	11	90	
G-65	Gilbert Whitt	. . . . do	D	60.5	6	Mfp	711	6.8	. . do . .	Tj	D	58	11	58	Cavity reported at 50 to 52 ft.
*G-66	John Moore	. . . . do	D	63.1	6	Mfp	712	7.2	. . do . .	Ts	D	61	11	74	Casing: 6-in. to 45 ft. Cavity at 50 to 52 ft.
G-67	Virgil Rogers. . . .	. . . . .	D	. . .	6	Mfp	736	22.8	. . do . .	Tj	D	59	4	32	
G-68	W. H. Culps	Michael Drilling Co.	D	67.8	6	Mfp	729	20.9	. . do . .	Tj	D	59	11	58	
G-69	L. P. Gregg	. . . . .	D	81	6	Mfp	730	25.9	. . do . .	Tj	D	. . .	11	140	
G-70	T. W. Calvin, Sr .	. . . . .	Du	30.3	48	R	713	18.5	1-14-59	Tc	D,S	. . .	18	20	
G-71	J. Beasley.	. . . . .	D	87.3	6	Mfp	759	18.8	1- 6-59	Ts	D,S	. . .	67	42	
G-72	J. E. Beasley, Sr.	Hurst Machine Works.	D	96	6	Mfp	765	23.1	. . do . .	Tj	D,S	. . .	11	118	
G-73	Dave Clem.	. . . . .	D	55.5	6	Mfp	742	15.6	11- 6-58	Tj	D	. . .	4	30	
G-74	Kirkland Bentley. .	. . . . .	D	83.3	6	Mfp	762	18.3	. . do . .	Tj	Irr	. . .	. . .	. . .	
G-75	Ford Tribble	. . . . .	Du	30.0	48	R	770	12.0	1- 6-59	Tj	D	. . .	11	28	
H- 1	Hubert Mitchell . .	. . . . .	Du	16.9	36	R	805	8.2	1- 7-60	Tj	D	. . .	18	36	
H- 2	Alvin Drawbaugh . .	. . . . .	Du	30.5	36	R	815	6.3	. . do . .	Tj	D	. . .	11	36	Inadequate for domestic supply in summer.
H- 3	James Newby	. . . . .	Du	20.8	36	R	810	.8	. . do . .	M	D	56	39	64	
H- 4	Marvin Croley . . .	E. G. Delashaw .	D	50	6	Mfp	775	18.9	. . do . .	Tj	D,S	. . .	46	32	
H- 5	Walter Clem	. . . . .	Du	21.8	36	R	745	1.8	. . do . .	Tj	D	60	18	52	
H- 6	James L. Press-nell.	. . . . .	D	60.4	6	Mfp	770	18.8	. . do . .	Tj	D	. . .	4	20	

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
H- 7	Mason Freeman . .	. . . . .	Du	22.0	36	R	722	1.5	1- 7-60	M	D	54	32	110	
I- 1	Ruben Freeman . .	. . . . .	D	80	6	Mfp	702	. . .	. . . . .	Tj	S	62	25	100	
I- 2	. . . . do	. . . . .	Du	30	36	R	715	. . .	. . . . .	Tc	D	. . .	4	150	
I- 3	Mason Freeman . .	. . . . .	Du	48.2	48	R	703	41.6	10-27-59	Tj	D,S	. . .	11	56	
I- 4	Ernest Clem	. . . . .	Du	25	36	R	728	. . .	. . . . .	Tc	D	62	4	38	
*I- 5	Luther Glaze	. . . . .	D	157.0	8	Mfp	695	8.4	11- 4-58	Tj	D,S	60	11	116	
I- 6	James P. Grooms.	Michael Drilling Co.	D	65	6	Mfp	718	. . .	. . . . .	Tj	D	61	4	60	
I- 7	Jimmy Howard . . .	. . . . .	D	. . .	6	Mfp	650	. . .	. . . . .	Tj	D	60	4	56	
J- 1	Roswell Penn	. . . . .	Du	26.2	36	R	733	19.7	10-30-58	Tc	D	. . .	39	46	Inadequate for domestic supply.
J- 2	Lee Phillips.	. . . . .	Du	21.0	36	R	752	11.5	. . do . .	Tj	D	. . .	53	68	
J- 3	M. H. Phillips . . .	. . . . .	Du	28.0	36	R	751	19.0	11- 3-58	Tj	D	. . .	11	30	Do.
J- 4	Nolen W. Johnson.	. . . . .	Du	20.2	36	R	740	11.3	. . do . .	Tj	D	. . .	11	40	Dry in summer 1957.
J- 5	Wallace Woods . . .	. . . . .	Du	28.9	36	R	764	15.0	. . do . .	Tc	D	. . .	25	98	
J- 6	Raymond Locke . .	. . . . .	Du	26.6	36	R	743	17.5	. . do . .	Tc	D	. . .	11	34	
J- 7	Oakdale Poultry Farms.	. . . . .	D	100	6	Mfp	717	. . .	. . . . .	Tj	D,S	. . .	11	54	
J- 8	. . . . do	. . . . .	D	73.3	6	Mfp	716	11.1	10-30-58	. . .	N	. . .	. . .	. . .	Electric log in files of U.S. Geol. Survey.
J- 9	Harold C. Smith . .	Michael Drilling Co.	D	70	6	Mfp	731	11.9	11- 6-58	Ts	D	. . .	11	326	Casing: 6-in. to 40 ft.
J-10	K. C. McClung. . .	. . . . .	Du	23.5	36	R	720	11.2	11- 5-58	Tc	D	60	11	46	
J-11	--Markowitz	. . . . .	Du	24.3	36	R	726	15.2	11- 6-58	M	D	60	46	70	
J-12	James Montgomery	. . . . .	Du	26.7	36	R	726	14.6	. . do . .	Tj	D	61	67	112	
J-13	A. W. Looney . . .	. . . . .	Du	26.2	36	R	712	21.8	11- 5-58	Tj	D,S	57	11	54	
J-14	K. C. McClung. . .	. . . . .	Du	31.8	36	R	716	20.6	11- 6-58	M	D	59	. . .	. . .	

J-15	L. R. Magnuson . .	. . . . .	S	. . .	. . .	Mfp	679	. . .	. . . . .	Tc	D,S	61	11	70	Estimated flow, 20 gpm on 12-30-58.
J-16	J. Beasley.	. . . . .	D	111.6	6	Mfp	683	11.1	12-30-58	Tj	D,S	60	11	160	
J-17	Judson Clem	. . . . .	Du	39	36	R	712	31.3	12-22-58	Tj	D	. . .	. . .	. . .	
J-18	Woodmen of the World.	. . . . .	S	. . .	. . .	Mfp	681	. . .	. . . . .	. . .	N	61	11	88	Measured flow, 36 gpm on 1-13-60.
*J-19	Sweet Sue Poultry Co.	Hurst Machine Works.	D	297	8	Mfp	688	13.1	12-22-59	. . .	N	62	18	82	Casing: 8-in. to 38 ft. Electric log in files of U.S. Geol. Survey. Inadequate for any supply.
*J-20	City of Athens . . .	H. W. Peerson Drilling Co.	D	132	10	Mfp	722	33	6- -50	T	P	62	18	56	Casing: 12-in. to 50.5 ft.; 10-in. to 112 ft. Pumped 520 gpm; drawdown 39 ft. after 9 hours. Average daily pumpage: 275,000 gallons. Driller's and sample logs in files of U.S. Geol. Survey.
J-21	H. N. Louvvorn . .	. . . . .	D	145.1	8	Mfp	711	16.9	12-16-58	. . .	N	61.5	. . .	. . .	Casing: 8-in. to 42 ft. Pumped 250 gpm; drawdown 42 ft. after 25 hours. Electric log in files of U.S. Geol. Survey. Observation well.
J-22	Thomas Walker . .	Hurst Machine Works.	D	77.5	6	Mfp	712	7.1	12-19-58	. . .	N	60	11	110	Casing: 6-in. to 25 ft.
J-23	Charles Todd	. . . . .	D	34.7	6	R	723	3.5	12-17-58	Tj	N	. . .	11	108	Pumps an estimated 10 gpm.
J-24	A. W. Shaw.	. . . . .	D	80	6	Mfp	725	10.0	. . do . .	Tj	D	59	11	36	
J-25	J. Beasley.	. . . . .	D	66	6	Mfp	722	. . .	. . . . .	Tj	D,S	. . .	11	52	
J-26	J. A. Craig.	. . . . .	Du	15.5	48	R	725	4.5	12-17-58	Tc	D	. . .	. . .	. . .	
J-27	J. Beasley.	. . . . .	D	50.5	6	Mfp	745	19.3	12-19-58	Tj	S	59	11	36	
J-28	--McDaniels	. . . . .	D	28	6	R Mfp	730	. . .	. . do . .	Tj	D	. . .	11	40	
J-29	D. C. Patterson . .	Hurst Machine Works.	D	53	6	Mfp	750	15.9	. . do . .	Tj	D,S	. . .	11	44	
J-30	C. R. Byram	Michael Drilling Co.	D	75	6	Mfp	746	20	7- -59	Ts	S	. . .	. . .	. . .	Reported to yield 2.5 gpm.
J-31	Wallace Blizzard .	. . . . do	D	60	6	Mfp	726	7.4	2-18-59	Tj	D	. . .	. . .	. . .	Cavity at 50 to 52 ft.
*J-32	Dr. Pepper Bottling Co.	. . . . .	D	100	8	Mfp	711	19.4	11-26-58	Ts	Ind	62	. . .	. . .	Observation well.
*J-33	City of Athens . . .	Adams-Massey Co.	D	152	12	Mfp	691	7.0	3- 3-58	T	P	63	. . .	. . .	Casing: 12-in. to 49.5 ft. Cavity at 55 to 57 ft. Average daily pumpage: 97,500 gallons.
*J-34	. . . . do	. . . . .	S	. . .	. . .	Mfp	695	. . .	. . . . .	T	P	61	. . .	. . .	Known as Athens Spring. Estimated flow, 450 gpm on 11-26-58.
*J-35	Gish Ice Plant . . .	. . . . .	D	117	8	Mfp	689	28.6	11-26-58	Ts	Ind	64	. . .	. . .	Observation well. Pumped 150 gpm; drawdown 41 ft. after 96 hours.
J-36	. . . . .	. . . . .	D	22.4	6	R	682	12.0	10-13-59	M	D	. . .	. . .	. . .	

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

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								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
J-37	John French.	. . . . .	D	88.7	6	Mfp	703	14.7	5-16-59	. . .	N	. . .	. . .	. . .	
*J-38	I. V. Legg.	. . . . .	D	225	6	Mfp	697	30.1	1-13-59	. . .	N	. . .	. . .	. . .	Observation well. Electric log in files of U.S. Geol. Survey.
J-39	Howard Burns . . .	. . . . .	D	49.0	6	Mfp	730	22.8	. . do . .	Tj	D	62	46	24	
J-40	J. L. Thomas . . .	. . . . .	Du	26.9	36	R	734	20.9	11- 5-58	Tc	D	59	32	46	Dry in 1954.
J-41	Leroy Bonnell . . .	Michael Drilling Co.	D	82	6	Mfp	736	12.9	1-13-59	Tj	D	63	18	30	
J-42	O. G. Johnson . . .	. . . . .	Du	26.2	36	R	727	11.1	11- 4-58	Tj	D	. . .	. . .	. . .	Inadequate for domestic supply at times.
J-43	Thomas E. Johnson.	. . . . .	D	53.6	6	Mfp	739	13.1	. . do . .	Tj	D Irr	60	11	58	
J-44	I. J. Thomas. . . .	. . . . .	Du	22.4	36	R	730	12.0	. . do . .	M	D	. . .	. . .	. . .	
J-45	Thomas Pike	. . . . .	Du	26.7	36	R	727	21.7	11- 3-58	Tj	D,S	. . .	. . .	. . .	Dry in summer 1957.
J-46	Esther Hunter . . .	. . . . .	S	. . .	. . .	Mfp	682	. . .	. . . . .	. . .	D	61	. . .	. . .	Estimated flow, 4 gpm on 11-5-59.
J-47	Mack Tidwell. . . .	. . . . .	D	64.7	6	Mfp	713	16.2	11- 4-58	Tj	D	. . .	. . .	. . .	
J-48	J. I. Thomas. . . .	. . . . .	Du	22.3	48	R	722	16.3	. . do . .	Tc	D	61	11	30	
J-49	R. A. Jones.	. . . . .	Du	26.9	36	R	724	19.8	. . do . .	Tj	D	. . .	25	38	
J-50	H. R. Kennedy. . .	Michael Drilling Co.	D	71.1	6	Mfp	719	22.6	. . do . .	Tj	D	60	25	114	
J-51	. . . . do	. . . . .	Du	23.0	36	R	704	15.6	. . do . .	. . .	N	. . .	. . .	. . .	
J-52	A. J. Thomas . . .	. . . . .	D	. . .	6	Mfp	722	. . .	. . . . .	Tj	D	60	18	88	
J-53	M. C. Allaway. . .	. . . . .	D	78	6	Mfp	725	. . .	. . . . .	Tj	D	. . .	11	40	
J-54	R. R. Thomas . . .	. . . . .	D	68.3	7	Mfp	741	19.3	11- 3-58	Tj	D	. . .	. . .	. . .	Casing: 7-in. to 43 ft.
J-55	. . . . do	. . . . .	D	68	6	Mfp	729	. . .	. . . . .	Tj	D	60	11	120	
J-56	Clarence Gordon. .	. . . . .	Du	22.6	36	R	732	15.3	11- 4-58	M	D	. . .	. . .	. . .	Dry in summer.
J-57	H. W. Thomas. . .	. . . . .	D	60.8	7	Mfp	705	11.5	. . do . .	. . .	N	. . .	. . .	. . .	
J-58	Howard Yancey. . .	. . . . .	S	. . .	. . .	Mfp	710	. . .	. . . . .	Tc	D,S	62	. . .	. . .	Estimated flow, 5 gpm on 11-4-58.

J-59	Price Wooten	. . . . .	Du	18.7	36	R	712	14.1	11- 4-58	Tj	D	. . .	. . .	. . .	Dry in summer.
J-60	W. G. Adams. . . .	. . . . .	. . .	. . .	. . .	Mfp	690	. . .	. . . . .	. . .	D	62	. . .	. . .	Estimated flow, 3 gpm on 11-4-58.
J-61	John King	. . . . .	D	48.5	6	Mfp	658	8.4	11- 7-58	Tj	D,S	59	11	120	
J-62	. . . . do	. . . . .	Du	31.0	36	R	681	25.8	. . do . .	M	D	60	. . .	. . .	Dry in summer.
J-63	Leo Clinard.	. . . . .	Du	23.3	36	R	694	18.6	11- 6-58	Tj	D,S	60	. . .	. . .	Inadequate for domestic supply at times.
J-64	James Groom. . . .	. . . . .	Du	23.6	36	R	681	16.2	11- 7-58	. . .	N	. . .	. . .	. . .	
J-65	John E. Garnett . .	. . . . .	S	. . .	. . .	Mfp	649	. . .	. . . . .	Tc	D	60	11	80	Estimated flow, 3 gpm on 11-7-58.
J-66	Joe Carpenter . . .	Crowe Drilling Co.	D	224	6	Mfp	682	32.4	1-30-59	. . .	N	. . .	. . .	. . .	Casing: 6-in. to 80 ft. Electric log in files of U.S. Geol. Survey.
J-67	Lyfus Locke.	. . . . .	Du	15.4	36	R	680	9.3	11- 7-58	M	D	61	25	100	
J-68	H. L. Hasting . . .	. . . . .	Du	23.5	36	R	692	18.0	. . do . .	Tc	D	. . .	. . .	. . .	Dry at times.
J-69	W. Daly	. . . . .	S	. . .	. . .	Mfp	709	. . .	. . . . .	. . .	N	61	11	52	Estimated flow, 15 gpm on 11-7-58.
J-70	. . . . do	. . . . .	Du	28.1	36	R	731	22.8	11- 7-58	Tj	D,S	. . .	11	40	Inadequate for domestic supply at times.
J-71	Joseph E. McPeak	Michael Drilling Co.	D	83.7	6	Mfp	721	47.5	. . do . .	Tj	D	59	11	26	
J-72	H. L. Crowe, Sr .	. . . . do	D	101	6	Mfp	721	. . .	11-10-58	Tj	D	. . .	4	20	
J-73	. . . . do	. . . . .	Du	66.8	48	R	722	59.8	. . do . .	Tj	D	60	11	24	
J-74	. . . . do	. . . . .	Du	48.5	36	R	714	37.3	. . do . .	Pp	D	60	11	40	
J-75	M. E. Montgomery	Miller Drilling Co.	D	85	6	Mfp	715	42.6	. . do . .	Tj	D	59	11	22	Casing: 6-in. to 72 ft.
J-76	. . . . do	. . . . do	D	130.4	6	Mfp	718	40.3	. . do . .	Ts	S	60	18	42	Casing: 6-in. to 70 ft. Water slightly sulfurous.
J-77	. . . . do	. . . . do	D	109.7	6	Mfp	704	52.8	. . do . .	Ts	S	60	11	50	Casing: 6-in. to 70 ft. Inadequate for stock supply at times.
J-78	C. B. Braly.	. . . . .	D	200	6	Mfp	691	. . .	. . . . .	Tj	D	59	11	36	
J-79	. . . . do	. . . . .	Du	60	36	R	697	46.3	11-10-58	Tj	D,S	62	18	54	
J-80	. . . . do	. . . . .	Du	29.6	36	R	655	15.8	. . do . .	Tj	D,S	62	11	36	
J-81	Albert Bradford . .	. . . . .	Du	26.4	48	R	686	12.2	11-21-58	Tj	D	. . .	. . .	. . .	
J-82	. . . . do	. . . . .	D	66.6	6	Mfp	685	12.7	. . do . .	. . .	N	. . .	. . .	. . .	Dry in 1951.
J-83	W. T. Harrison . .	Hurst Machine Works.	D	136.7	7	Mfp	689	20.6	. . do . .	Tj	D	. . .	11	40	Inadequate for domestic supply.
J-84	W. G. Royals . . .	. . . . .	Du	28.9	48	R	675	24.8	. . do . .	Tc	D	. . .	. . .	. . .	Inadequate for domestic supply at times.
J-85	Spinning Wheel Motel.	. . . . .	D	38.1	6	Mfp (?)	679	22.0	. . do . .	Tc	P,D	58	11	80	Casing: 6-in. to 22 ft.

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
J-86	G. L. Knight	. . . . .	Du	29.6	48	R	693	25.2	11-21-58	M	D,S	. . .	. . .	. . .	
J-87	R. P. Lauderdale.	Michael Drilling Co.	D	100+	6	Mfp	708	11.0	. . do . .	Ts	D,S	60	4	22	
J-88	Herbert Woods . . .	. . . . .	Du	19.4	48	R	713	12.9	. . do . .	. . .	N	. . .	. . .	. . .	Dry in 1954.
J-89	Sam Phillips	. . . . .	Du	30	36	R	724	. . .	. . . . .	Tc	D	. . .	. . .	. . .	
J-90	Wilma Swanner. . .	. . . . .	Du	30.8	48	R	729	16.2	11-21-58	Tj	D,S	. . .	96	86	
J-91	C. W. Spencer. . .	. . . . .	D	. . .	6	Mfp	728	. . .	. . . . .	. . .	D	. . .	11	26	
J-92	Alton Schrimsher .	. . . . .	D	45.4	6	Mfp	734	11.5	12- 1-58	Tj	D	58	11	28	Inadequate for domestic supply at times.
J-93	R. B. Leicher . . .	. . . . .	D	51.0	6	Mfp	732	25.7	12- 4-58	Tj	D	. . .	11	28	Inadequate for domestic supply.
J-94	W. Van Gilbert. . .	. . . . .	D	50	6	Mfp	734	. . .	. . . . .	Tc	D	. . .	. . .	. . .	
J-95	W. T. Hamm. . . .	. . . . .	D	42.7	6	Mfp	732	19.5	12- 1-58	Tj	D	. . .	18	18	
J-96	M. H. Brown. . . .	. . . . .	D	42.4	6	Mfp	731	18.3	. . do . .	Tj	D	. . .	11	38	
J-97	Horace Pack	. . . . .	D	43.8	6	Mfp	731	18.8	. . do . .	Tj	D	60	11	26	
J-98	J. T. Marks	. . . . .	D	46.6	6	Mfp	729	21.8	12- 4-58	Tj	D	. . .	4	32	
J-99	Paul Stewart	. . . . .	Du	16.8	36	R	693	5.1	11-21-58	Tc	D	60	11	36	
J-100	J. F. Roberts . . .	Michael Drilling Co.	D	86	6	Mfp	703	13	7- -58	Ts	D	59	11	10	Casing: 6-in. to 65 ft.
J-101	K. L. Looney. . . .	. . . . .	Du	26.3	48	R	702	17.9	11-21-58	Tc	D	60	11	30	Inadequate for domestic supply at times.
J-102	G. M. Russell . . .	. . . . .	Du	23.5	36	R	689	15.7	11-12-58	Tc	D,S	62	18	86	
J-103	J. L. Fleming . . .	. . . . .	Du	36.1	36	R	691	28.3	. . do . .	Tj	D	59	11	50	Do.
J-104	J. B. Sherrod . . .	Michael Drilling Co.	D	84.2	6	Mfp	683	21.9	11-11-58	Tj	D	64	18	74	Casing: 6-in. to 35 ft.
J-105	. . . . do	. . . . .	S	. . .	. . .	Mfp	661	. . .	. . . . .	. . .	N	59	11	80	Estimated flow, 120 gpm on 11-11-58.
J-106	Gene Strain	Leon Miller. . . .	D	164.1	6	Mfp	671	19.4	11-11-58	Ts	D	59	11	86	Reported to pump 3 gpm. Inadequate for domestic supply.
J-107	Strain Nurseries. .	. . . . .	D	134.1	6	Mfp	677	7.7	. . do . .	Tj	Irr	. . .	11	22	

*J-108	Hugh Strain	Michael Drilling Co.	D	65	6	Mfp	682	22.0	11-11-58	Tj	D	61	11	90	Casing: 6-in. to 30 ft. Water has very high iron content.
J-109	Oscar Raney	. . . . do	D	31.3	6	Mfp	662	10.5	. . do . .	. . .	N	. . .	. . .	. . .	
J-110	. . . . do	. . . . .	S	. . .	. . .	Mfp	656	. . .	. . . . .	T	P	64	18	40	Estimated flow, 155 gpm on 11-11-58.
J-111	. . . . do	Michael Drilling Co.	D	30.3	6	Mfp	656	2.0	11-11-58	. . .	N	64	11	58	
J-112	. . . . do	. . . . do	D	28.0	6	Mfp	652	3.0	. . do . .	. . .	N	65	18	114	
J-113	. . . . do	. . . . do	D	103.5	6	Mfp	649	2.1	. . do . .	. . .	N	. . .	. . .	. . .	Inadequate for any supply.
J-114	J. C. Legg	. . . . .	S	. . .	. . .	Mfp	632	. . .	. . . . .	Tc	D,S	61	11	78	Estimated flow, 8 gpm on 11-11-58.
J-115	Mason Jackson . . .	. . . . .	S	. . .	. . .	Mfp	645	. . .	. . . . .	. . .	S	61	4	54	Estimated flow, 15 gpm on 11-11-58.
J-116	M. D. Pryor	. . . . .	D	26.2	6	R (?)	701	14.9	11-10-58	M	D,S	64	11	54	
J-117	M. E. Montgomery	Leon Miller	D	137	6	Mfp	705	54.1	. . do . .	Ts	S	60	11	88	Casing: 6-in. to 80 ft.
J-118	A. D. Powers . . .	. . . . .	D	49.6	6	Mfp	714	34.0	11-11-58	M	D	60	18	48	
J-119	. . . . do	. . . . .	D	. . .	6	Mfp	701	18.0	11-17-58	Pv	D,S	63	11	22	
J-120	Mabel Yarbrough .	Hurst Machine Works.	D	114	6	Mt Mfp	736	. . .	. . . . .	Tj	D	60	18	128	Casing: 6-in. to 55.5 ft.
J-121	J. F. Lindsay . . .	. . . . .	Du	35	48	R	711	. . .	11-17-58	Tj	D	65	11	26	Inadequate for domestic supply at times.
J-122	. . . . do	. . . . .	Du	25.1	36	R	681	7.7	. . do . .	Tj	D	65	18	36	
J-123	Alma Chittam. . . .	. . . . .	D	. . .	6	Mfp	661	23.2	. . do . .	Tj	D	63	4	40	
J-124	E. E. Hardiser . .	. . . . .	Du	35.0	36	R	671	30.2	. . do . .	Tj	D	65	32	92	Dry at times.
J-125	Donald Isom.	Michael Drilling Co.	D	107.9	6	Mfp	682	14.8	8-15-59	Tj	D	. . .	. . .	. . .	Water at 101 ft.
J-126	W. E. Faulkner . .	. . . . .	D	. . .	6	Mfp	694	. . .	11-17-58	Tj	D	64	11	14	
J-127	E. K. Isom	. . . . .	Du	34.0	48	R	676	23.5	. . do . .	Tj	D	64	4	20	Inadequate for domestic supply at times.
J-128	H. S. Orr	Crowe Drilling Co.	D	256	6	Mfp	682	37.3	. . do . .	Tj	D	61	18	36	Casing: 6-in. to 50 ft.
J-129	. . . . do	. . . . do	D	205	6	Mfp	675	20.9	. . do . .	Ts	N	. . .	. . .	. . .	Do.
J-130	R. L. Orr.	. . . . .	D	80	6	Mfp	695	28.7	11-18-58	Tj	D	62	4	36	
J-131	Charles Sowell . . .	. . . . .	S	. . .	. . .	Mfp	639	. . .	. . . . .	Tc	D,S	61	11	48	Estimated flow, 30 gpm on 11-18-58.
J-132	L. N. Haney	. . . . .	Du	41.0	48	R	686	28.0	11-17-58	Tj	D,S	63	25	22	
J-133	--Allen.	. . . . .	S	. . .	. . .	Mfp	636	. . .	. . . . .	. . .	N	62	11	72	
J-134	Athens Country Club.	Michael Drilling Co.	D	40	6	Mfp	645	. . .	. . . . .	Pp	P	62	18	60	

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
J-135	Athens Country Club.	Michael Drilling Co.	D	40	6	Mfp	656	. . .	. . . . .	T	Irr	. . .	11	14	
J-136	. . . . do	. . . . do	D	88	6	Mfp	689	. . .	. . . . .	Tj	D, P Irr	61	18	66	
J-137	C. M. Mewby . . .	. . . . .	Du	65.3	36	R	676	55.6	11-12-58	Tc	D	61	11	38	Inadequate for domestic supply in 1954.
J-138	C. D. Scott	Michael Drilling Co.	D	96	6	Mt Mfp	678	32.4	. . do . .	Tj	D	60	11	18	
J-139	Bruce Barley	. . . . .	Du	41.2	48	R	682	31.8	. . do . .	M	D	62	11	36	Inadequate for domestic supply at times.
J-140	Town and Country Motel.	Michael Drilling Co.	D	. . .	6	Mfp	681	. . .	. . . . .	Ts	D, P	62	18	48	Casing: 6-in. to 20 ft.
J-141	Roy Long.	. . . . .	Du	16.6	48	R	679	3.4	11-12-58	M	D	62	25	22	Dry in 1954.
J-142	Rossie Owen	. . . . .	Du	25.3	48	R	694	14.5	11-21-58	Tj	D	60	11	42	
K- 1	E. E. Carter	. . . . .	Du	23.4	48	R	752	6.7	2-16-59	Tc	D	. . .	32	56	Dry at times.
K- 2	Edgar Smith.	. . . . .	Du	52.0	48	R	745	15.3	. . do . .	Pp	D	54	11	38	
K- 3	Benton Barksdale .	Hurst Machine Works.	D	58.6	6	Mfp	740	20.6	. . do . .	Tj	D	. . .	11	50	
K- 4	R. F. Patterson . .	. . . . .	Du	28.9	48	R	750	17.9	. . do . .	Tj	D, S	. . .	4	38	Inadequate for domestic and stock supply at times.
K- 5	J. W. Raney	. . . . .	Du	29.6	48	R	746	6.6	. . do . .	Tj	D, S	. . .	89	124	
K- 6	. . . . .	. . . . .	S	. . .	. . .	Mfp	698	. . .	. . . . .	. . .	N	58	11	34	Known as Morris Spring. Estimated flow, 20 gpm on 2-17-59.
K- 7	J. Barksdale	. . . . .	D	18.6	6	R (?)	719	.9	2-16-59	M	D	56	11	22	
K- 8	W. F. Clark	. . . . .	Du	14.1	60	R	729	.3	2-17-59	M	D	52	. . .	. . .	
K- 9	Cecil Hargrove. . .	. . . . .	Du	30.9	48	R	746	5.7	. . do . .	Tj	D, S	. . .	32	84	
K-10	Booster Shaw. . . .	. . . . .	Du	32.0	60	R	741	7.7	. . do . .	M	D, S	60	. . .	. . .	
K-11	Luther Sanderson .	. . . . .	Du	23.0	48	R	710	4.7	. . do . .	Tj	D	. . .	25	30	
K-12	Harry Baker	. . . . .	D	38.8	6	R (?)	678	4.7	. . do . .	M	D	52	. . .	. . .	
K-13	H. B. Daniel	Michael Drilling Co.	D	279	6	R	679	. . .	. . . . .	Tj	D	. . .	11	70	Casing: 6-in. to 17 ft. Dry in summer.

K-14	Elmer Green	Michael Drilling Co.	D	70	6	Mfp	719	6.9	2-17-59	Tj	D,S	59	11	144	
K-15	Redus Barker. . . .	. . . . .	D	28.1	6	R (?)	740	1.6	. . do . .	M	D	57	25	38	Casing: 6-in. to 17 ft.
K-16	J. F. Ball.	. . . . .	S	. . .	. . .	Mfp	692	. . .	. . . . .	. . .	S	61	11	30	Estimated flow, 10 gpm on 2-24-59.
*K-17	. . . . do	. . . . .	D	58.9	6	Mfp	690	9.0	2-24-59	M	D	59	11	42	Casing: 6-in. to 20 ft.
K-18	Marvin Glaze. . . .	. . . . .	Du	21.9	60	R	709	8.1	2-17-59	Tj	D,S	57	32	42	
K-19	L. B. Glaze	. . . . .	D	68	6	Mfp	734	. . .	. . . . .	Tj	S	. . .	11	20	
K-20	. . . . do	. . . . .	D	166.8	6	Mfp	761	16.3	2-17-59	M	D	59	11	110	
K-21	Mack Inman.	Michael Drilling Co.	D	78	6	Mfp	744	15.7	. . do . .	Tj	D	. . .	11	20	
K-22	Mahlor Holland. . .	. . . . do	D	133	6	Mfp	745	. . .	. . . . .	Tj	D	. . .	. . .	. . .	
K-23	Frank Turner. . . .	. . . . do	D	68.7	6	Mfp	735	12.7	4-17-59	. . .	D	. . .	. . .	. . .	
K-24	M. S. Adams. . . .	Hurst Machine Works.	D	105	6	Mfp	730	. . .	. . . . .	Tj	D	. . .	11	88	Casing: 6-in. to 25 ft.
K-25	James Morris . . .	. . . . .	S	. . .	. . .	Mfp	717	. . .	. . . . .	. . .	D,S	60	4	58	Known as Morris Spring. Estimated flow, 10 gpm on 2-24-59.
K-26	Bea Keller.	. . . . .	D	42.1	6	Mfp	753	13.0	2-24-59	Tj	D	. . .	11	36	
K-27	R. E. Hughes . . .	Herman Elliott. .	D	71	6	Mfp	719	5.7	12- 9-59	Tc	D	59	11	90	
K-28	Hulet Cox	. . . . .	Du	25.2	48	R	720	5.6	2-24-59	Tj	D,S	. . .	32	70	
K-29	Zeke Evans	. . . . .	S	. . .	. . .	Mfp	689	. . .	. . . . .	. . .	D,S	59	11	46	Estimated flow, 50 gpm on 2-27-59.
K-30	Howard Turner. . .	. . . . .	Du	24.3	48	R	669	18.0	2-24-59	Tc	D,S	. . .	18	94	Inadequate for domestic and stock supply during dry seasons.
K-31	Christine Lippard.	. . . . .	D	. . .	6	Mfp	689	. . .	. . . . .	Tj	D	62	18	30	
K-32	L. J. Evans.	Hurst Machine Works.	D	90.2	6	Mfp	649	1.9	2-24-59	M	D	57	89	64	Casing: 6-in. to 4 ft.
K-33	. . . . .	. . . . .	S	. . .	. . .	Mfp	662	. . .	. . . . .	. . .	N	54	11	24	Estimated flow, 15 gpm on 2-26-59.
K-34	W. M. Gatlin. . . .	. . . . .	Du	7.2	48	R	679	1.1	2-24-59	Tj	D	52	4	26	
K-35	E. M. Taylor . . .	. . . . .	Du	32.1	48	R	661	16.2	2-26-59	Tj	D,S	. . .	32	154	
K-36	. . . . .	. . . . .	S	. . .	. . .	Mfp	639	. . .	. . . . .	. . .	N	62	4	24	Estimated flow, 60 gpm on 2-26-59.
K-37	L. B. Grubbs. . . .	. . . . .	Du	30	48	R	690	7	5- -57	Tc	D,S	. . .	11	16	
K-38	R. W. Evans	. . . . .	Du	28.9	48	R	690	7.1	2-26-59	Tj	D	. . .	18	16	
K-39	Fred Ferguson. . .	Michael Drilling Co.	D	70.6	6	Mfp	692	18.6	2-27-59	Tj	D	61	4	24	Casing: 6-in. to 40 ft.

Table 1. --Records of wells and springs in Athens area, Ala. --Continued

Well or spring no.	Owner	Driller	Type	Depth of well (feet)	Diameter of well (inches)	Water-bearing unit	Altitude of land surface (feet)	Water level		Method of lift	Use of water	Field determinations			Remarks
								Above (+) or below land surface(feet)	Date of measurement			Temperature (°F)	Chloride (Cl)	Hardness as $CaCO_3$ (ppm)	
K-40	Billy Bolton	Michael Drilling Co.	D	76.8	6	Mfp	705	30.7	2-27-59	Tj	D	62	11	30	
K-41	T. W. McBride . .	. . . . .	D	80	6	Mt (?)	703	. . .	. . . . .	Tc	D,S	62	11	88	
K-42	. . . . do	. . . . .	D	90	6	Mt (?)	705	. . .	. . . . .	Tc	D	. . .	. . .	. . .	
K-43	Marvin Elmore. . .	. . . . .	Du	20.8	48	R	702	11.3	2-27-59	Tj	D	. . .	11	14	
K-44	Jesse O. Looney. .	. . . . .	D	64.4	6	Mt (?)	733	17.0	3- 2-59	Tj	D	. . .	11	18	
K-45	Alvis McLemore. .	. . . . .	Du	23.4	48	R	682	11.9	. . do . .	Tj	D	59	11	16	
K-46	Bobbie Davis	. . . . .	Du	13.3	48	R	663	6.4	. . do . .	Tc	D	57	11	12	
K-47	W. C. Downes . . .	Michael Drilling Co.	D	62	6	Mt (?)	649	. . .	. . . . .	Tj	D	59	11	32	
K-48	Lonnie Hudson . . .	. . . . .	Du	26.7	48	R	625	4.0	3- 2-59	M	D,S	57	25	80	
K-49	Benny Dean	. . . . .	D	60	6	Mt (?)	691	. . .	. . . . .	Tj	D,S	. . .	11	20	
K-50	Claude Mitchell . .	Hurst Machine Works.	D	46.0	6	Mt (?)	680	24.5	3- 2-59	M	D	62	11	42	
K-51	. . . . do	. . . . do	D	80	6	Mt (?)	633	. . .	. . . . .	Tc	D	. . .	4	74	
L- 1	Addrick Holland . .	. . . . .	Du	26.7	36	R	730	10.5	1-11-60	Tj	D	. . .	4	24	
L- 2	Roosevelt Shoulders.	. . . . .	Du	24.5	36	R	722	11.3	. . do . .	M	D	59	11	74	Inadequate for domestic supply at times.
L- 3	Ola Shaw.	. . . . .	Du	18.9	36	R	681	3.3	. . do . .	M	D	59	32	56	
L- 4	Wesley Marks . . .	. . . . .	Du	35.9	36	R	635	22.6	. . do . .	Tj	D	. . .	4	52	
L- 5	C.A. Christenson .	. . . . .	Du	50	36	R	662	8.9	. . do . .	Tj	D	. . .	53	20	
CT-1	U.S. Geol. Survey	Hawley Dodson & Son.	D	151.8	6	Mfp	683	2.5	7- 1-59	. . .	N	60.5	11	70	Casing: 6-in. to 52 ft. Weathered, water-bearing chert to 82.5 ft. Pumped at 100 gpm; drawdown 47 ft. after 24 hours. Chattanooga shale at 82.5 ft.

CT-2	U.S. Geol. Survey	Hawley Dodson & Son.	D	132.5	6	Mfp	707	14.2	7- 2-59	...	N	61	7	68	Casing: 6-in. to 50 ft. Weathered, water-bearing chert to 94 ft. Pumped at 100 gpm; drawdown 32 ft. after 8 hours. Chattanooga shale at 125.7 ft.
CT-3	.... do	.... do	D	108.8	6	...	726	...	.....	...	...	...	...	...	Dry hole. Depth to bedrock, 70 ft. Chattanooga shale at 93.3 ft.
CT-4	.... do	.... do	D	142.4	6	Mfp	725	3.9	8-17-59	...	N	60.5	4	134	Casing: 6-in. to 17 ft. Weathered, water-bearing chert 50 to 56 ft. Drawdown at 250 gpm; 52 ft. Chattanooga shale at 139 ft.
CT-5	.... do	.... do	D	131.7	6	Mfp	703	15.4	8-26-59	...	N	62	7	118	Casing: 6-in. to 60 ft. Weathered, water-bearing chert at 73 ft. Estimated yield, 5 gpm. Chattanooga shale at 126.3 ft.
CT-6	.... do	.... do	D	82.3	6	Mfp	711	14.8	8-31-59	...	N	60	7	68	Casing: 6-in. to 31 ft. Weathered, water-bearing chert 44 to 46 ft. Chattanooga shale at 73 ft.
CT-7	.... do	.... do	D	106.9	6	...	695	...	.....	...	...	...	...	...	Dry hole. Depth to bedrock, 49 ft. Chattanooga shale at 101 ft.
CT-8	.... do	.... do	D	136.1	6	...	724	...	.....	...	...	...	...	...	Dry hole. Depth to bedrock, 31.3 ft. Chattanooga shale at 130 ft.
CT-9	.... do	.... do	D	116.3	6	...	702	...	.....	...	...	...	...	...	Dry hole. Depth to bedrock, 47.5 ft. Chattanooga shale at 114 ft.
CT-10	.... do	.... do	D	125.0	6	Mfp	737	12.5	10- 1-59	...	N	60	4	96	Casing: 6-in. to 24.5 ft. Weathered, water-bearing chert 38 to 39 ft. Estimated yield, 5 gpm. Chattanooga shale at 119.7 ft.
CT-11	.... do	.... do	D	100.7	6	Mfp	696	5.9	10-11-59	...	N	60.5	14	66	Casing: 6-in. to 49.5 ft. Weathered, water-bearing chert 60 to 60.5 ft. and 70 to 71 ft. Estimated yield, 5 gpm. Chattanooga shale at 94.5 ft.
CT-12	.... do	.... do	D	135.3	6	Mfp	702	7.3	11-25-59	...	N	61	14	56	Casing: 6-in. to 42.5 ft. Weathered, water-bearing chert 51 to 53 ft. and 56 to 58 ft. Estimated yield, 75 gpm. Chattanooga shale at 128.5 ft.
CT-13	.... do	.... do	D	117.5	6	Mfp	688	6.0	10-23-59	...	N	61	14	56	Casing: 6-in. to 81 ft; slotted from 60 to 81 ft. Weathered, water-bearing chert 81 to 90 ft. Chattanooga shale at 113 ft.
CT-14	.... do	.... do	D	141.8	6	...	667	...	.....	...	...	...	...	...	Dry hole. Depth to bedrock, 42 ft. Chattanooga shale at 137 ft.

Table 2.--Sample logs of test wells in the Athens area, Alabama

	Thickness (feet)	Depth (feet)
Well CT-1 **Sec. 8, T. 3 S., R. 4 W.**		
Soil and residuum, red to yellow-brown, cherty . . .	52	52
Fort Payne chert:		
Chert, white to light-tan, dense to porous, weathered	7	59
Chert, white to light-tan, dense to porous, weathered; light-gray to blue-gray finely crystalline dolomite; crinoid stems	5.5	64.5
Chert, white to tan, dense to porous, weathered; light-medium-gray dense to finely crystalline dolomite; crinoid stems	13	77.5
Chert, cream to light-brown, dense to porous, weathered; light-gray to green-gray dense dolomite; crinoid stems	5	82.5
Chattanooga shale:		
Phosphate nodules; pyrite; Spirorbis omphalodes(?)	.2	82.7
Chickamauga limestone:		
Dolomite, medium-gray, dense to finely crystalline, phosphatic	20.3	103
Limestone, light- to medium-gray, dense to crystalline; white dense chert; gypsum; small brachiopods	49	152

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-2 **Sec. 5, T. 3 S., R. 4 W.**		
Soil and residuum, red to yellow, cherty	50	50
Fort Payne chert:		
Chert, white to light-tan, dense to porous, weathered; light-gray finely crystalline limestone.	9	59
Chert, light-gray to tan, dense to porous, weathered; crinoid stems	5	64
Chert, white to light-tan, dense to porous, weathered; light-gray finely crystalline limestone.	5	69
Chert, white to light-tan, dense to porous, weathered; crinoid stems	22	91
Chert, white to light-tan, dense to porous, weathered; medium-gray dense dolomite . . .	3	94
Dolomite, medium-gray, finely crystalline; smoky dense chert.	4	98
Dolomite, medium-blue-gray, dense; medium-gray dense chert.	7	105
Chert, medium-gray, dense; medium-gray finely crystalline dolomite	3.5	108.5
Chert, light-gray, dense; light- to medium-gray finely crystalline dolomite	3.5	112

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-2--Continued		
Fort Payne chert--Continued		
Chert, light-gray-white to light-gray, dense; light-gray-white medium crystalline limestone.	13.5	125.5
Shale, blue-green, clayey	.2	125.7
Chattanooga shale:		
Dolomite, medium-gray, dense; contains Spirorbis omphalodes(?); phosphate nodules; rounded quartz grains; pyrite; sandstone . . .	4.8	130.5
Chickamauga limestone:		
Limestone, light- to medium-gray, finely crystalline, dolomitic	2	132.5
Well CT-3 Sec. 32, T. 2 S., R. 4 W.		
Soil and residuum, dark-red to orange-red to yellow, cherty	70	70
Fort Payne chert:		
Chert, white to light-brown, dense, weathered; milky dense fresh chert; light-gray-white medium crystalline limestone; crinoid stems	5	75

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-3--Continued		
Fort Payne chert--Continued		
Limestone, light-gray-white, medium crystalline; white dense chert	8	83
Dolomite, blue-gray, dense; white dense chert	6	89
Dolomite, medium-gray, finely crystalline; medium-gray dense chert	4	93
Shale, blue-green, clayey	.3	93.3
Chattanooga shale:		
Pyrite; phosphate nodules; rounded quartz grains	.3	93.6
Chickamauga limestone:		
Dolomite, green-gray, dense, phosphatic; pyrite	5.4	99
Limestone, light-gray-white to light-gray, dense to medium crystalline	10	109

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-4 **Sec. 31, T. 2 S., R. 4 W.**		
Soil and residuum, yellow, cherty.	17	17
Fort Payne chert:		
Limestone, light-gray, dolomitic; light-gray dense chert	5	22
Dolomite, light-gray, very finely crystalline; milky white to clear dense chert	28	50
Chert, tan, brown, yellow, weathered; medium-gray finely crystalline limestone; green-gray dolomite; crinoid stems	6	56
Dolomite, green-gray, very finely crystalline with small amount of pyrite; milky dense chert; calcite vein; crinoid stems.	4	60
Limestone, medium-gray, dolomitic; green-gray finely crystalline dolomite; milky dense chert.	4	64
Dolomite, green-gray, dense; milky dense chert; calcite vein with small amount of pyrite; crinoid stems	3	67
Limestone, medium-gray, dolomitic with small amount of pyrite; light- to medium-gray finely crystalline dolomite; milky to tan chert; small crinoid stems.	4	71
Dolomite, light- to medium-gray, with small amount of pyrite; light- to medium-gray finely crystalline limestone; clear to milky chert; calcite vein.	4	75

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-4--Continued		
Fort Payne chert--Continued		
Limestone, medium-gray, mottled white and gray, finely crystalline; milky dense chert; calcite vein	3	78
Dolomite, medium-gray, finely crystalline with pyrite; clear to milky dense chert; calcite vein	22	100
Shale, light-brown to tan, mottled with dark-brown, silty	1	101
Dolomite, medium-gray, dense to finely crystalline; smoky dense chert	1	102
Dolomite, light- to medium-gray, dense to finely crystalline; smoky dense chert	3	105
Dolomite, medium-gray, finely crystalline; medium-gray dense limestone; calcite vein; smoky dense chert	3	108
Dolomite, light-medium-gray, finely crystalline; smoky dense chert	7	115
Dolomite, light-gray, finely crystalline; smoky dense chert	6	121
Dolomite, light- to medium-gray, dense; gray-white to light-gray medium crystalline limestone; medium-gray dense chert	9	130

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-4--Continued		
Fort Payne chert--Continued		
Dolomite, gray-white to medium-gray, dense; gray-white mottled limestone; gray-white to milky chert; calcite vein.	3	133
Limestone, light-gray, dense to finely crystalline; milky dense chert.	3	136
Dolomite, medium-gray to green-gray, dense to finely crystalline; milky dense chert.	2.4	138.4
Shale, blue-green, clayey	.6	139
Chattanooga shale:		
Pyrite; rounded quartz grains; phosphate nodules; Spirorbis omphalodes(?).	1.4	140.4
Chickamauga limestone:		
Limestone, dark-medium-gray, finely crystalline; pyrite	2	142.4
Well CT-5 Sec. 8, T. 3 S., R. 4 W.		
Soil and residuum, red to yellow, cherty	57	57
Fort Payne chert:		
Chert, white to light-brown, weathered	2	59
Limestone, green-gray, dolomitic, very finely crystalline; light-gray dense chert; crinoid stems	4	63

Table 2. --Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-5--Continued		
Fort Payne chert--Continued		
Dolomite, light-gray, very finely crystalline; light-gray to milky dense chert; calcite vein; pyrite	5	68
Dolomite, light- to medium-gray, finely crystalline; light-gray mottled with dark-gray limestone; clear to milky to light-gray dense chert; tan and light-brown weathered chert	5	73
Shale, tan to light-brown, mottled with dark-brown, silty	.5	73.5
Dolomite, light-gray, dense to finely crystalline; clear to light-gray chert; light-gray dense dolomitic limestone; calcite vein	14.5	88
Dolomite, light-gray, mottled with dark-gray, dense; light-gray mottled with dark-gray dense limestone; light- to medium-gray dense chert; pyrite; calcite vein	2.5	90.5
Dolomite, light-green-gray, finely crystalline, limy; milky to light-medium-gray dense chert; calcite vein; pyrite	2.5	93
Dolomite, light-medium-gray to green-gray, finely crystalline; medium-gray to smoky chert; pyrite	5	98
Dolomite, light-medium-gray to green-gray, finely crystalline; milky to smoky dense chert	6.5	104.5

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-5--Continued		
Fort Payne chert--Continued		
Dolomite, light-green-gray, finely crystalline; clear to milky to light-gray chert; calcite vein	4.5	109
Chert, milky to light-gray, dense; light-greenish-gray finely crystalline dolomite; calcite vein with some pyrite	3	112
Limestone, light-gray, finely crystalline; green-gray finely crystalline dolomite; clear to milky to smoky chert; calcite vein with pyrite	6	118
Limestone, light-gray, finely crystalline; green-gray dense dolomite; light-gray dense chert; calcite vein with pyrite	8	126
Shale, blue-green, clayey	.3	126.3
Chattanooga shale:		
Dolomite, gray-green, finely crystalline; pyrite; phosphate nodules; rounded quartz grains; light-gray to smoky chert; Spirorbis omphalodes(?); small amount of dark-gray shale	4	130.3
Chickamauga limestone:		
Limestone, light- to medium-gray, dense to finely crystalline	5.7	136

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-6 **Sec. 4, T. 3 S., R. 4 W.**		
Soil and residuum, red to yellow-brown, cherty . . .	31	31
Fort Payne chert:		
Chert, light-tan to light-brown, dense to porous, weathered; light-gray to smoky dense fresh chert; light-medium-green-gray finely crystalline dolomite; light-gray dense to finely crystalline limestone; calcite vein; pyrite	5	36
Limestone, light-gray, dense; light-medium-green-gray dolomite; light-gray to smoky chert.	3.5	39.5
Limestone, light-gray-white, friable; green-gray finely crystalline dolomite; light-tan dense chert	4.5	44
Shale, light-green-tan, mottled black; light-gray finely crystalline limestone; light-green-gray dense dolomite; light-gray dense chert; crinoid stems	.5	44.5
Limestone, light-gray-white, weathered; tan weathered chert	2	46.5
Dolomite, light-gray, finely crystalline; light-gray finely crystalline limestone; gray-white to light-gray dense chert; calcite vein; crinoid stems	6	52.5
Limestone, light-gray, dense; smoky dense chert; calcite vein; crinoid stems	7	59.5

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-6--Continued		
Fort Payne chert--Continued		
Shale, green-tan, mottled black; light-medium-gray dense limestone; smoky gray chert; tan weathered chert; light-medium-green-gray finely crystalline dolomite	2.5	62
Dolomite, light-green-gray to blue-gray, finely crystalline; medium-green-gray finely crystalline limestone; crystalline opaque white calcite; light-gray to smoky chert; pyrite	4	66
Dolomite, light-gray, dense; light-gray to milky chert; calcite vein.	7	73
Chattanooga shale:		
Pyrite; phosphate nodules; medium-gray to gray-green finely crystalline dolomite; smoky dense chert	2	75
Chickamauga limestone:		
Dolomite, medium-gray to green-gray, finely crystalline; light- to medium-gray limestone.	5	80
Limestone, dark-medium-gray, crystalline, with small disseminated crystals of galena; gypsum; small brachiopods	2	82

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-7 **Sec. 9, T. 3 S., R. 4 W.**		
Soil and residuum, dark-red, little chert	20	20
Soil, reddish-yellow to yellow-tan, cherty	29	49
Fort Payne chert:		
Dolomite, medium-gray, dense; light-gray dense chert; calcite vein.	4	53
Dolomite, medium-gray, dense; light- to medium-gray dense to crystalline limestone; smoky to milky dense chert	8	61
Dolomite, medium-gray, finely crystalline; medium-gray to blue-gray dense chert; pyrite	5	66
Limestone, light-gray, dense; light-gray dense dolomite; blue-gray dense chert.	5	71
Limestone, light-tan-gray, dense to finely crystalline; medium-gray dense chert.	10	81
Dolomite, light-gray, dense; tan-gray dense chert; pyrite.	5	86
Limestone, medium-gray, crystalline, dolomitic; light-gray dense chert; crinoid stems	10	96
Dolomite, medium-gray, dense; light-gray dense chert; crinoid stems	5	101

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-7--Continued		
Chattanooga shale:		
Phosphate nodules, black; rounded quartz grains; pyrite; dark-gray siltstone; Spirorbis omphalodes(?)	0.3	101.3
Chickamauga limestone:		
Limestone, light- to dark-gray, dense to finely crystalline; black phosphate nodules; small brachiopods	3.7	105
Well CT-8 Sec. 18, T. 3 S., R. 4 W.		
Soil and residuum, red to yellow-brown, cherty	31	31
Fort Payne chert:		
Dolomite, light-tan to light-green, finely crystalline; smoky to milky to clear dense chert	4	35
Dolomite, light-tan-gray, finely crystalline; smoky to milky chert; very small amount pyrite	5	40
Limestone, light-gray-white to gray to tan-gray, very finely crystalline; smoky to clear dense chert; very small amount pyrite	17	57

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-8--Continued		
Fort Payne chert--Continued		
Dolomite, light-medium-gray, finely crystalline; milky to smoky dense chert; light-medium-gray dense limestone; crinoid stems	8	65
Dolomite, light-medium-gray, finely crystalline; milky to smoky to clear chert	30	95
Dolomite, light-medium-gray, dense; milky to clear chert; very small amount pyrite	15	110
Dolomite, light-medium-gray, dense; milky to smoky chert; small amount pyrite; crinoid stems; bluish-gray clayey shale	4	114
Dolomite, light-gray, dense to finely crystalline; dense smoky to milky to clear chert; small amount pyrite	8	122
Limestone, light-gray to light-tan; milky dense chert	3	125
Dolomite, light-gray to light-medium-gray; milky dense chert; pyrite	4.5	129.5
Shale, blue-green, clayey	.5	130
Chattanooga shale:		
Dolomite, medium-tan-gray, finely crystalline; phosphate nodules; clear round quartz pebbles; pyrite; Spirorbis omphalodes(?)	2	132

Table 2. --Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-8--Continued		
Chickamauga limestone:		
Limestone, light- to medium-gray, finely crystalline	4	136
Well CT-9 Sec. 17, T. 3 S., R. 4 W.		
Soil and residuum, red to orange-red to yellow, with increasing chert with depth	47.5	47.5
Fort Payne chert:		
Dolomite, green-gray, calcareous, finely crystalline; dense milky chert; tan weathered chert; calcite vein	5.5	53
Dolomite, green-gray, calcareous, finely crystalline; milky to smoky dense chert; light-gray finely crystalline limestone; pyrite; crinoid stems	9	62
Dolomite, light-green-gray, finely crystalline; calcite vein; dense smoky to milky chert	5	67
Calcite, white, crystalline; light-green-gray finely crystalline dolomite; smoky to milky dense chert	10	77
Limestone, light-gray-white, finely to coarsely crystalline; light-green-gray finely crystalline dolomite; milky to smoky dense chert; crinoid stems	9	86

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-9--Continued		
Fort Payne chert--Continued		
Limestone, light-tan-gray, medium crystalline; white crystalline limestone; medium-green-gray finely crystalline dolomite; smoky dense chert.	15	101
Dolomite, medium-green-gray, finely crystalline; tan-gray dense limestone; smoky to milky dense chert; pyrite; calcite vein.	13	114
Chattanooga shale:		
Pyrite; phosphate grains; Spirorbis omphalodes(?).	.3	114.3
Chickamauga limestone:		
Limestone, medium-gray, dense	1.7	116
Well CT-10 Sec. 7, T. 3 S., R. 4 W.		
Soil and residuum, red to yellow, cherty	24	24
Fort Payne chert:		
Dolomite, light-gray, dense; white to blue-white dense chert	14	38
Chert, gray-white to tan, weathered	1	39
Dolomite, light-gray, finely crystalline; clear to smoky dense chert.	5.5	44.5

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-10--Continued		
Fort Payne chert--Continued		
Shale, yellow-tan to olive-tan, mottled with black.	0.5	45
Dolomite, light-gray, finely crystalline; clear to smoky to milky chert; calcite vein; pyrite.	13	58
Dolomite, light-gray, dense; light-gray to smoky dense chert	4	62
Dolomite, light-gray, finely crystalline; milky to light-gray to medium-gray dense chert; calcite vein	27	89
Dolomite, light-gray to medium-gray, dense to finely crystalline; milky to light-gray to smoky chert; calcite vein	13	102
Dolomite, light- to medium-gray, dense to finely crystalline; milky to light-gray to smoky chert; calcite vein	4	106
Dolomite, light-gray, dense; milky to smoky dense chert	6	112
Dolomite, light-gray, dense; milky to smoky dense chert; light-gray finely crystalline limestone.	6	118
Limestone, light-gray, dense to medium-gray, finely crystalline; milky dense chert.	1.7	119.7
Shale, blue-green, clayey	.3	120

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-10--Continued		
Chattanooga shale:		
Pyrite; phosphate noudles; clear rounded quartz grains; green-gray finely crystalline dolomite; Spirorbis omphalodes(?).	3	123
Chickamauga limestone:		
Limestone, medium-gray, finely crystalline, dolomitic; white to light-gray dense chert; pyrite	2	125
Well CT-11 Sec. 4, T. 3 S., R. 4 W.		
Soil and residuum, red to yellow-tan, cherty	49	49
Fort Payne chert:		
Dolomite, light-gray, finely crystalline; medium-gray dense chert.	7	56
Limestone, dark-medium-gray, finely crystalline, dolomitic; milky chert.	4	60
Chert, tan and yellow-brown, weathered	.5	60.5
Siltstone, green-yellow, micaceous.	.5	61
Limestone, dark-medium-gray, dense to finely crystalline, dolomitic; milky chert . .	1	62

Table 2. --Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-11--Continued		
Fort Payne chert--Continued		
Limestone, dark-medium-gray, dense to finely crystalline, dolomitic; milky to smoky chert; crinoid stems	7	69
Dolomite, light-gray to greenish-gray; light-tan-yellow, mottled with dark-brown shale; milky dense chert	1	70
Chert, yellow-white to tan, weathered	1	71
Dolomite, light-gray, dense, calcareous; clear to milky to smoky chert; calcite vein	4	75
Dolomite, medium-gray, dense, calcareous; clear to smoky chert; calcite vein	5	80
Dolomite, medium-gray, dense, calcareous; smoky dense chert; light-gray dense limestone.	9	89
Dolomite, light- to medium-gray, finely crystalline; smoky to white dense chert; pyrite	5.5	94.5
Chattanooga shale:		
Dolomite, dark-gray, dense, with black phosphate nodules; rounded quartz grains; pyrite; Spirorbis omphalodes(?).	.5	95

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-11--Continued		
Chattanooga shale--Continued		
Dolomite, medium-gray-green, finely crystalline, with Spirorbis; sandstone with phosphate nodules; pyrite	2	97
Chickamauga limestone:		
Limestone, light-gray, dense; light-gray dense dolomite; pyrite	2	99
Limestone, medium-gray to dark-gray, dense to finely crystalline	2	101
Well CT-12 Sec. 5, T. 3 S., R. 4 W.		
Soil and residuum, orange to yellow, cherty	41	41
Fort Payne chert:		
Dolomite, light-gray, dense; light-gray dense chert	6	47
Dolomite, light-medium-gray, dense; light-gray dense limestone; light-gray dense chert; crinoid stems	4	51
Chert, tan to brown, dense to porous, weathered	2	53
Dolomite, light-gray to light-medium-gray, finely crystalline; light-gray dense chert. . .	3	56

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-12--Continued		
Fort Payne chert--Continued		
Chert, yellow-tan to brown, dense to porous, weathered	2	58
Dolomite, light-gray, dense, calcareous; light-gray dense chert; light-gray dense limestone.	5	63
Chert, medium-gray, dense; light-gray dense dolomite	5	68
Dolomite, light-gray to light-medium-gray, dense, slightly calcareous; medium-gray and bluish-white chert	11	79
Dolomite, light-gray to light-medium-gray, dense to finely crystalline; light-gray to smoky dense chert; pyrite.	27	106
Dolomite, light-gray to light-medium-greenish-gray, dense to finely crystalline; white dense chert.	4	110
Dolomite, light-gray to light-medium-gray, finely crystalline, slightly calcareous; clear to smoky chert	3	113
Limestone, light-gray, dense; light-gray dense chert; light-medium-gray to green-gray finely crystalline dolomite	5	118
Dolomite, light-gray, dense; smoky dense chert.	3	121
Limestone, light-gray, dense, dolomitic; light-gray dense chert	3	124

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-12--Continued		
Fort Payne chert--Continued		
Dolomite, light-medium-gray, dense; smoky to milky dense chert	4.5	128.5
Chattanooga shale:		
Pyrite; phosphate nodules; gray-white finely crystalline limestone; light-gray dense chert; Spirorbis omphalodes(?)	2.5	131
Chickamauga limestone:		
Limestone, light-tan-gray to medium-gray, finely to medium crystalline; small brachiopods; pyrite	2	133
Limestone, light- to dark-medium-gray, dense to finely crystalline	2	135
Well CT-13 Sec. 8, T. 3 S., R. 4 W.		
Soil and residuum, red to yellow, cherty	40	40
Clay, gray-white, cherty, soft	41	81
Fort Payne chert:		
Chert, white to tan, dense to porous, weathered; light-green-gray finely crystalline dolomite; crinoid stems	4	85

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-13--Continued		
Fort Payne chert--Continued		
Chert, white to tan, dense to porous, weathered; gray-white to light-gray limestone; bluish-gray weathered dolomite .	3	88
Chert, white to tan, dense to porous, weathered; light-gray-white dense limestone	3	91
Chert, white to tan, dense to porous; calcareous dolomite to dolomitic green-gray dense to finely crystalline limestone; crinoid plates; pyrite	4	95
Dolomite, medium-gray, dense to finely crystalline; white to tan weathered to fresh dense chert	4	99
Dolomite, light- to medium-gray, finely crystalline; light-gray dense limestone; medium-gray dense chert; crinoid plates. . .	4	103
Dolomite, light-medium-gray to green-gray; medium-gray dense chert.	3	106
Chert, white to tan, dense to porous, weathered; milky dense fresh chert; light- to medium-green-gray dense to finely crystalline dolomite; pyrite.	4	110
Shale, blue-green, clayey	3	113

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-13--Continued		
Chattanooga shale:		
Phosphate nodules; medium-green-gray dense dolomite; clear rounded quartz grains; pyrite; Spirorbis omphalodes(?).	0.5	113.5
Chickamauga limestone:		
Limestone, light-green-gray to medium-gray, dense to finely crystalline.	4	117.5
Well CT-14 **Sec. 21, T. 3 S., R. 4 W.**		
Soil and residuum, red to yellow-tan, cherty	41	41
Fort Payne chert:		
Dolomite, medium-green-gray, dense; milky dense chert	4	45
Dolomite, medium-green-gray, dense; milky to smoky dense chert.	14	59
Chert, milky to smoky, dense; light-green-gray dense dolomite	3	62
Dolomite, light-gray, dense; clear to milky chert.	3	65
Dolomite, light-gray-white, dense; milky dense chert	3	68

Table 2. --Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-14--Continued		
Fort Payne chert--Continued		
Limestone, light-gray-white, crystalline; milky chert	7	75
Chert, clear to milky, dense; light-gray-white crystalline limestone; light-gray-green finely crystalline dolomite	7	82
Limestone, light-gray-white, crystalline; light-gray-green finely crystalline dolomite; clear to milky dense chert	4	86
Chert, clear to milky to smoky; light-green-gray finely crystalline dolomite	4	90
Dolomite, medium-green-gray, dense to finely crystalline; milky to smoky chert	7	97
Dolomite, light-medium-gray-green, dense; smoky dense chert	8	105
Dolomite, light-green-gray, dense; clear dense chert; calcite vein; pyrite	9	114
Dolomite, gray-green, dense; clear dense chert	7	121
Dolomite, dark-gray-green, dense; white dense chert; pyrite	16	137

Table 2.--Sample logs of test wells in the Athens area, Alabama--Continued

	Thickness (feet)	Depth (feet)
Well CT-14--Continued		
Chattanooga shale:		
Dolomite, dark-gray, dense; phosphate nodules; pyrite; rounded quartz pebbles. . . .	1	138
Chickamauga limestone:		
Limestone, light- to medium-gray, dense to finely crystalline; phosphate nodules.	2	140

Table 3. --Chemical analyses of water from selected wells in the Athens area, Alabama

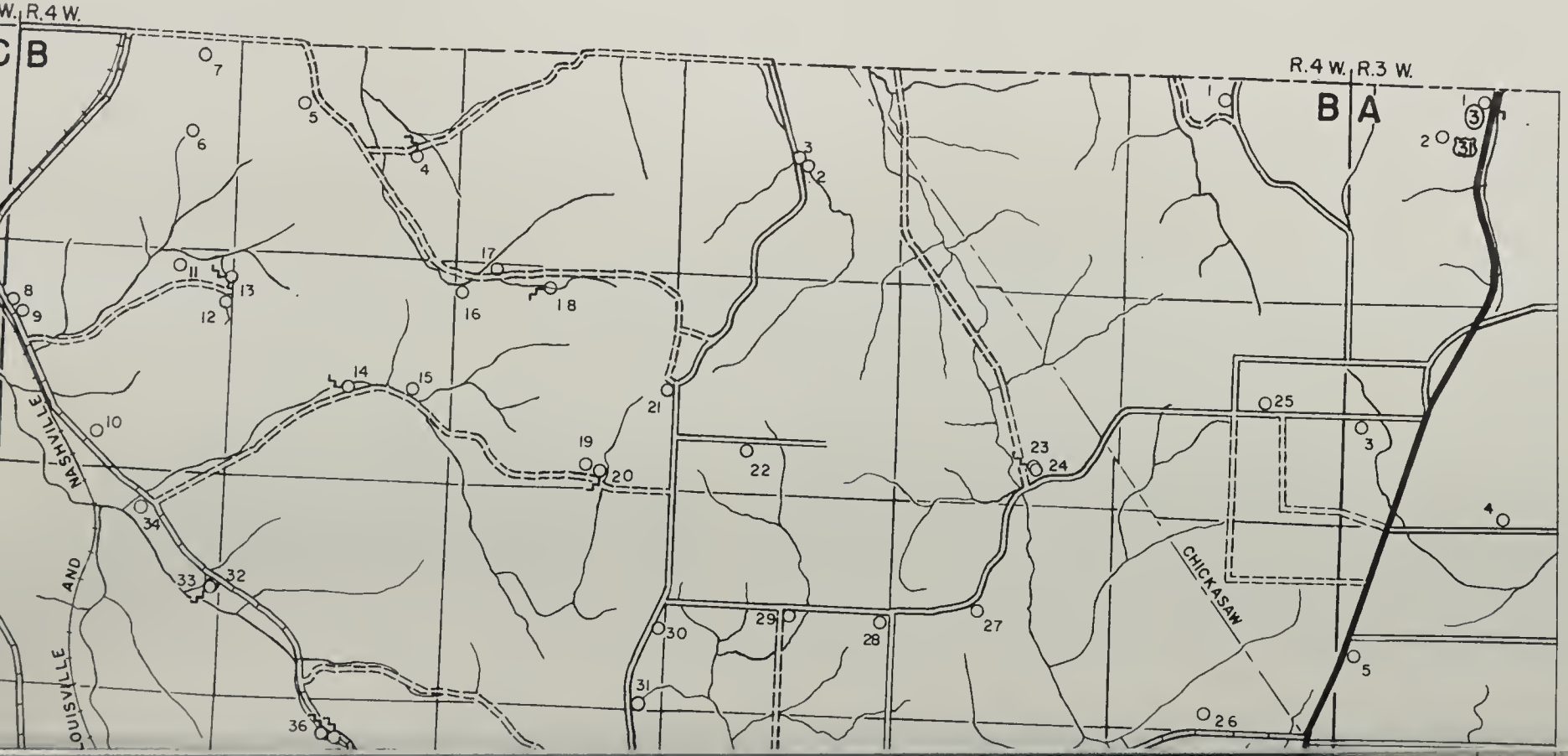
(In parts per million)

Well no.: Numbers correspond with those in plate 1 and table 1

Water-bearing unit: Mfp, Fort Payne chert

Well no.	Water-bearing unit	Date of collection	Temperature (°F)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Hardness		Specific conductance (micromhos at 25°C)	pH
														As $CaCO_3$ (Calcium magnesium)	Non-carbonate		
B-50	Mfp	3-23-59	60	0.00	30	2.7	1.3	102	0	3.2	2.5	0.0	3.3	86	2	179	7.3
G- 7	Mfp	3-25-59	57	.01	12	.7	1.1	39	0	1.2	2.0	.0	1.6	33	1	73	7.5
G-66	Mfp	. . do . .	62	.00	18	4.1	2.3	77	0	.8	2.8	.0	8.1	62	0	146	7.0
I- 5	Mfp	3-30-59	59	.00	39	3.5	4.8	120	4	18	2.0	.2	.1	112	7	236	8.4
J-19	Mfp	3-23-59	62	.00	12	4.6	11	54	0	1.2	16	.1	13	49	4	160	7.7
J-20	Mfp	. . do . .	60	.01	20	.5	1.3	56	0	.0	3.2	.0	5.6	52	6	109	7.3
J-32	Mfp	4- 1-59	62	.00	14	2.4	.6	55	0	3.2	2.8	.1	2.0	45	0	98	7.8
J-33	Mfp	3-23-59	62	.01	28	5.4	3.4	102	0	2.4	3.0	.1	4.0	92	8	179	7.9
J-34	Mfp	. . do . .	61	.00	18	2.7	3.4	64	0	2.4	3.0	.0	3.2	56	4	121	7.7
J-35	Mfp	3-30-59	64	.00	18	3.6	1.4	74	0	2.4	2.8	.1	5.1	60	0	126	8.0
J-38	Mfp	3-23-59	62	.00	16	2.4	9.0	72	0	8.8	7.2	.1	.3	50	0	150	7.6
J-108	Mfp	. . do . .	62	.00	14	5.4	1.6	71	0	2.8	4.5	.1	.3	57	0	121	7.4
K-17	Mfp	3-26-59	60	.00	11	3.0	2.2	44	0	2.0	2.5	.1	6.0	40	4	93	7.4

E S S E E



T E N N E S S E E

R.6W., R.5W. R.5W., R.4W. R.4W., R.3W.

D C C B B A

T.1S. T.2S. T.2S. T.3S.

E F C B F G B A G H

E F L K F G K J G H J I

L K K J J I

R. 6W. R. 5W. R. 5W. R. 4W. R. 4W. R. 3W.

Base modified from TVA-USGS topographic quadrangles.

3¼° True north Mag. north

APPROXIMATE MEAN DECLINATION 1958

Prepared by United States Geological Survey in cooperation with City of Athens, and Geological Survey of Alabama

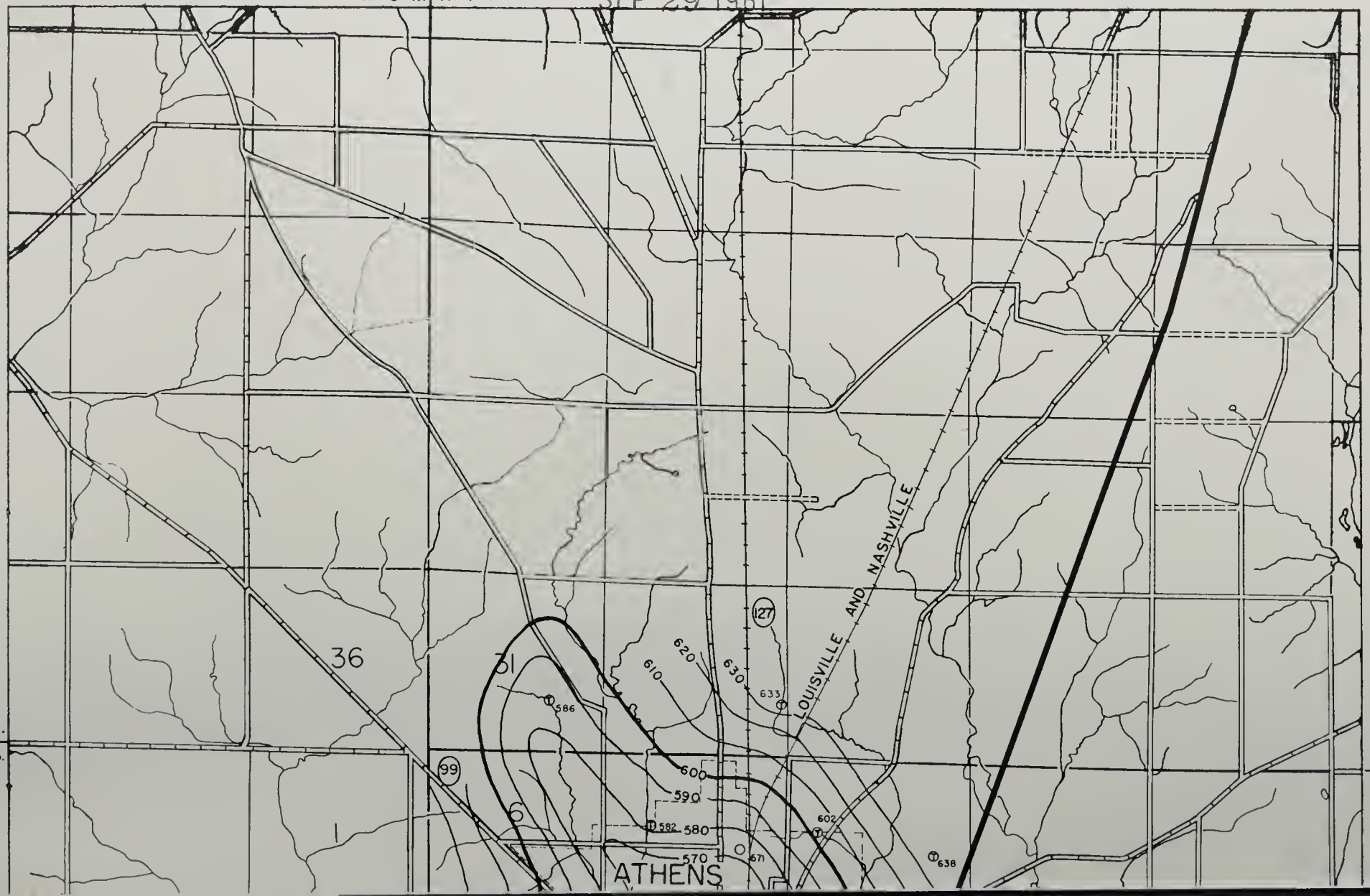
MAP OF THE ATHENS AREA, ALABAMA
SHOWING LOCATION OF WELLS AND SPRINGS

Miles ½ 0

EXPLANATION

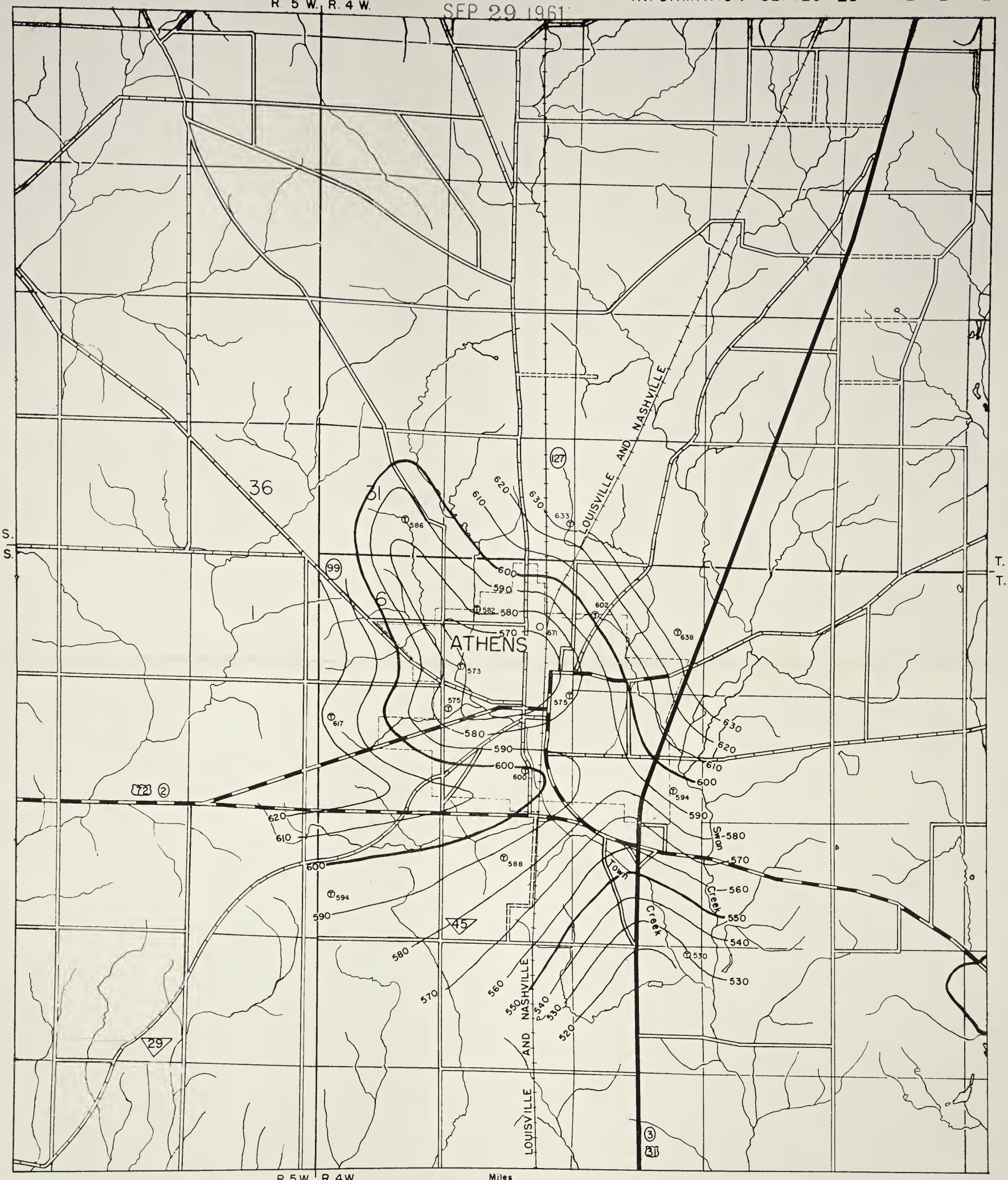
- Well used for municipal, industrial, or irrigation supply
- Well used for domestic or stock supply
- Spring
- Test well
- (50) Water analyzed

- Primary paved road
- Secondary paved road
- Gravel or soil road
- U.S. highway
- State highway
- County highway



GEOLOGICAL SURVEY OF ALABAMA

INFORMATION SERIES 23 PLATE 2



Base, modified from TVA-USGS topographic quadrangles.

STRUCTURE MAP OF ATHENS, ALA., AND VICINITY

Showing configuration of the top of the Chattanooga shale

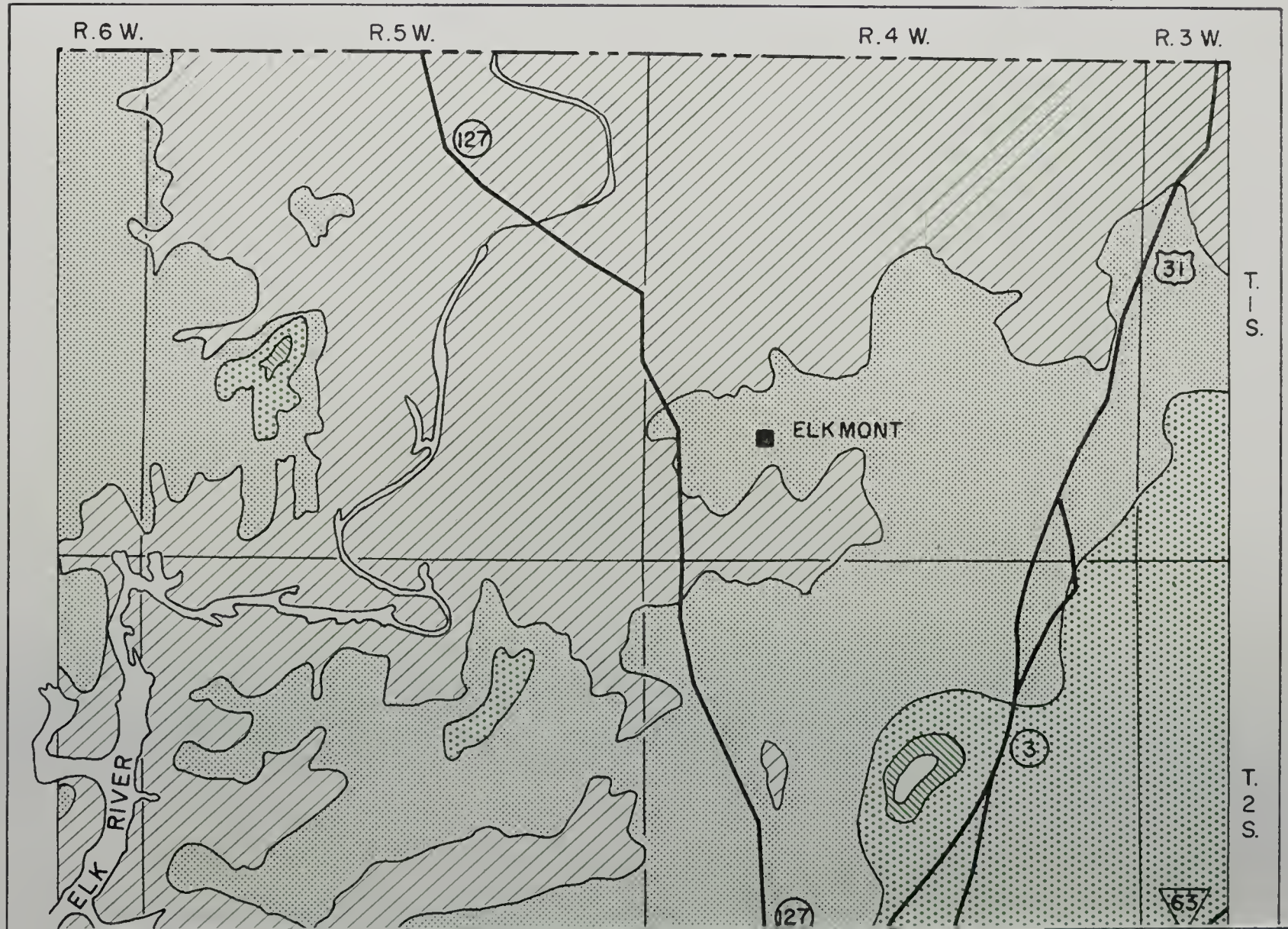
Contour interval 10 feet

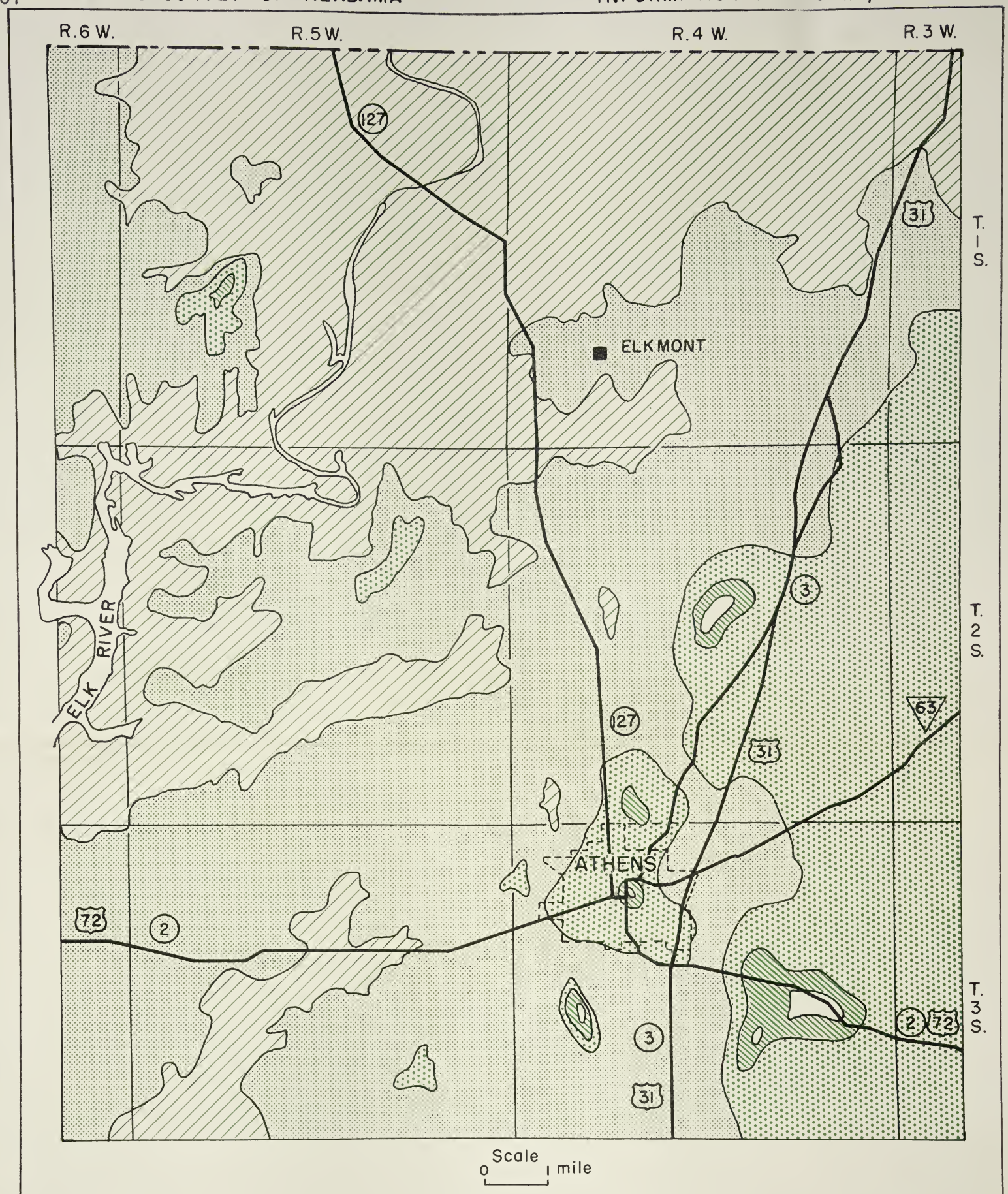
Datum is mean sea level

EXPLANATION

⊙602

Test well, showing altitude of top of Chattanooga shale

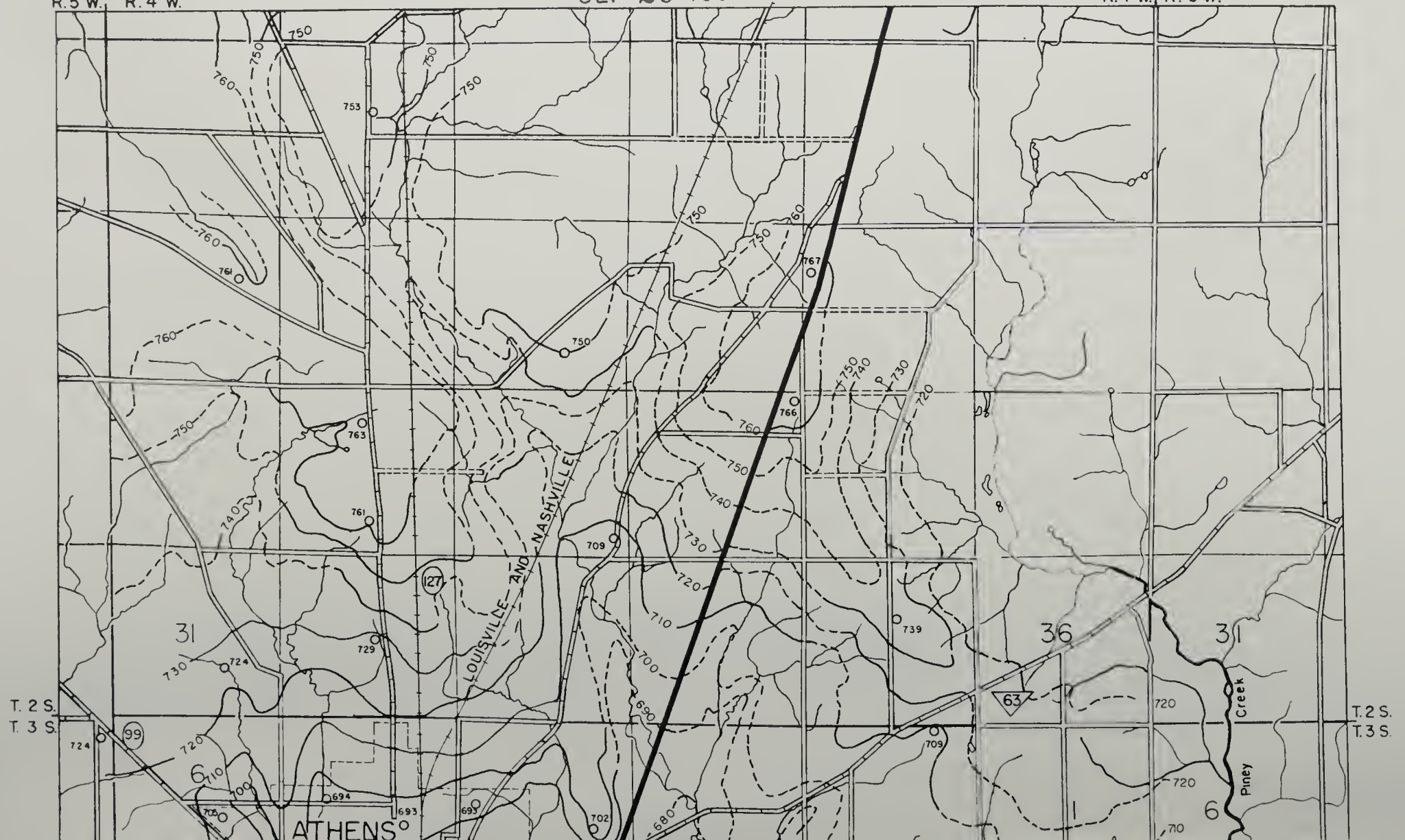




EXPLANATION

0-20 FEET	20-40 FEET	40-60 FEET	60-80 FEET	80-100 FEET

MAP OF THE ATHENS AREA ALABAMA, SHOWING RANGES OF THICKNESS OF RESIDUAL MATERIAL OVER BEDROCK



R.5 W. R.4 W. R.4 W. R.3 W.

T. 2 S.
T. 3 S.

ATHENS

LOUISVILLE AND NASHVILLE

Town Creek

Swan Creek

Piney Creek

Piney Creek

R.5 W. R.4 W. R.4 W. R.3 W.

Miles ½ 0

Base modified from TVA-USGS topographic quadrangles.

APPROXIMATE MEAN DECLINATION 1958

True north 3¼° Mag. north

WATER-LEVEL CONTOUR MAP OF ATHENS ALA. AND VICINITY, DECEMBER, 1959

Contour dashed where inferred
Contour interval 10 feet
Datum is mean sea level

EXPLANATION

652

Well. Number is altitude of water level

4. PLATES

Information Series 20

INTERIM REPORT ON GROUND-WATER STUDY IN COLBERT COUNTY, ALABAMA

By Hobart B. Harris, Gerald K. Moore
and Lawson V. Causey

Prepared by the
United States Geological Survey
in cooperation with the
Colbert County Board of Revenue
and the
Geological Survey of Alabama

1960